

# Subject and Author Index to Volume 259 American Journal of Physiology

American Journal of Physiology:  
Cell Physiology

American Journal of Physiology:  
Endocrinology and Metabolism

American Journal of Physiology:  
Gastrointestinal and Liver Physiology

American Journal of Physiology:  
Lung Cellular and Molecular Physiology

American Journal of Physiology:  
Heart and Circulatory Physiology

American Journal of Physiology:  
Regulatory, Integrative and Comparative Physiology

American Journal of Physiology:  
Renal, Fluid and Electrolyte Physiology

Advances in Physiology Education

Page — Issue Guide  
American Journal of Physiology  
Volume 259

July	August	September	October	November	December
C1-C180	C181-C373	C375-C530	C531-C696	C697-C847	C849-C1015
E1-E139	E141-E303	E305-E461	E463-E599	E601-E762	E763-E891
G1-G156	G157-G327	G329-G518	G519-G691	G693-G897	G899-G1067
H1-H267	L1-L157	H653-H995	L159-L335	H1313-H1617	L337-L515
R1-R188	H269-H652	R393-R661	H997-H1311	R865-R1091	H1619-H1937
F1-F193	R189-R392	F393-F538	R663-R863	F733-F860	R1093-R1294
	F195-F392		F539-F731		F863-F1000
					S1-S26*

\* Advances in Physiology Education

# Subject Index to Volume 259

## A

- A23187: *see* Ionophore A23187  
 Acclimation: *see* Temperature  
 A6 cells, kallikrein-like enzyme, vectorial secretion of, C869  
 A-431 cells, intracellular acidification, heat effects, C727  
 4-Acetamido-4'-isothiocyanostilbene-2,2'-disulfonic acid  
   hydrogen and bicarbonate flux and, distal colon, C35  
   transepithelial acidification and, proximal tubules, C103  
 Acetoacetate  
   islet function and  
   calcium handling, E117  
   rubidium handling and, E123  
 Acetylcholine  
   activation, intrathoracic ganglionic neurons, H1108  
   adrenergic and cholinergic responses, bronchial arteries, H156  
   alterations in cAMP, lower esophageal sphincter, G239  
   apical sodium channels, colon (turtle), C668  
   AV junctional rhythm, heart, H839  
   cerebral circulation, nitric oxide effects, H1216  
   cholinergic regulation, coronary blood flow (swine), H109  
   endothelial dysfunction, heart, H1660  
   endothelium-dependent dilation, basilar artery, chronic hypertension, H1455  
   ganglionic, modulation of release by muscarinic and nicotinic receptors, R288  
   maturation, tracheal smooth muscle contraction, L130  
   membrane hyperpolarization, endothelium-dependent cerebral vasodilation and, H668  
   microinjection, intermediolateral nucleus, R357  
   potassium channels sensitive to, atrial myocytes, H1730  
   pulmonary circulation, EDRF role in, at birth, H1921  
   receptor currents, twitch and tonic muscle fibers (snake), C911  
   release  
     calcitonin gene-related peptide stimulation of, myenteric plexus, G934  
     prejunctional inhibition of, bronchi, L304  
     serotonin-induced release, submucosal cholinergic neurons, G1019  
     substance P and, tracheal smooth muscle contraction (cattle), C258  
 Acetylcholinesterase, maturation of, tracheal smooth muscle contraction, L130  
 Acetyl coenzyme A, oxidation, substrate preference, early myocardial reperfusion, H317  
 N-Acetyl-L-cysteine, flow-mediated vasodilation and, H804  
 ACh: *see* Acetylcholine  
 Acid, aspiration, edema, phalloidin and, L378  
 Acid-base balance  
   carbon dioxide pressure, renal cortex, F357  
   cardiac tissue, exposure to anoxia and acidosis (turtle), R15  
   glutamate dehydrogenase effects, nephron segments, F53  
   ketone body production rates, lipolysis and, E327  
   metabolism, spermatid energy, C660  
   putative sodium-hydrogen exchanger, renal brush-border membrane, F867  
 Acidification  
   basolateral, oxynticopeptic cell (frog), G564  
   depressed, distal tubule, correction of chloride-deplete alkalosis, F636  
   distal nephron, hydrogen ion extrusion mechanisms in, F628  
   glomerulotubular balance, angiotensin II and, F72  
   hypoxia and, sodium and calcium, myocardium, C940  
   intracellular, apical vessels, aldosterone-induced, F65  
   intracellular sodium ion activity and, myocardial ischemia, C169  
   mechanisms, basolateral membrane, renal vesicles, F458  
   renal, calcium effects, F451  
   transepithelial, proximal tubules, C103  
 Acidosis  
   cardiac tissue exposed to, force and acid-base state of (turtle), R15  
   cerebral blood flow during, arterial pH modulation of, H34  
   contractile system, skinned fibers, hypertrophied heart, H1044  
   glutamine transport and, mitochondrial, F863  
   hypercapnic, vasopressin role in, awake state, R690  
   intracellular  
     heart and brain nucleotide pools in shock, H1781  
     oxynticopeptic cell (frog), G564  
   intracellular pH and inorganic phosphates during, heart, <sup>31</sup>P-NMR measurements of (turtle), R521  
   intracellular sodium ion activity and, myocardial ischemia, C169  
   metabolic, adaptation to, kidney, R277  
   respiratory  
     contractility and intramyocardial pH during (ferret), H843  
     sodium-hydrogen antiporter, renal, F512  
 Acinar cells, trachea, intracellular calcium concentration, L345  
 Acrolein, eicosanoid release and, airway epithelial cells (bovine), L222  
 Acromegaly, IGF I expression, renal, F251  
 ACTH: *see* Adrenocorticotrophic hormone  
 Actin  
   filamentous  
     baseline secretion and, intestinal goblet cells, G991  
     distribution in retina cells (bass), C205  
   microfilaments, tubular structure and function, F279  
   prediction of stress, smooth muscle (swine), C251  
 Actinomycin D, protein synthesis, preconditioning and, myocardium, H1822  
 Addiction, opiates, peptide transport system, blood-brain barrier, E1  
 Adenine nucleotides, depletion, xanthine oxidase and, endothelial cells, C883  
 Adenohypophysis, TSH, lighting condition effects, E162  
 Adenosine  
   active hyperemia and, soleus and gracilis muscle, H1295  
   alveolar reactive hyperemia, skeletal muscle, H1313  
   coronary microvascular response and, during occlusion, H909  
   interstitial, heart (guinea pig), H1471  
   modulation, gastrin release, G-cells, G556  
   prolonged starvation and, adipose tissue (hamster), E80  
   regulation, regional cerebral blood flow, sensory cortex, H1703  
   relaxation mediated by, thoracic aorta, H62  
   response, ontogeny of, heart and aorta (guinea pig), H1637  
   transport  
     brush-border membrane, ileum, G504  
     transcapillary, heart (guinea pig, rat), H772  
   vasodilation and, superior mesenteric artery, G605  
   vasopressin interaction, inner medullary collecting duct, F679  
 Adenosine deaminase inhibitor, protective effects, ischemia-reperfusion injury, heart, H835  
 Adenosine diphosphate  
   IMP formation and, skeletal muscle, C409  
   potassium channel activity and, cortical collecting tubule, F494  
 Adenosine monophosphate, cyclic  
    $\beta$ -adrenoceptors and, smooth muscle cells, stomach (guinea pig), G436  
   ANF synthesis and, inner medullary collecting duct subsegments, F535  
   apical membrane sodium conductance and, cortical collecting duct, F823  
   calcitonin gene-related peptide action and, acetylcholine release, myenteric plexus, G934  
   calcium transport and, distal nephron segments, F408  
   catecholamine-induced formation, oxygen tension effects, erythrocytes (carp), C723  
   chloride and potassium conductance, salt-secreting epithelial cells, C358  
   chloride secretion and,  $\beta$ -adrenergic mediated, L426  
   chloride secretion pathway, duramycin effects, airway epithelium, C450  
   dibutyryl, vesicle transport and HRP excretion, liver, G727  
   glucagon cholerisis and (guinea pig), G736  
   guanine nucleotide-binding, adrenoceptor metabolism, S49 cells, C41  
   hormonally regulated proteins and, fetal lung, L283

- Adenosine monophosphate (*continued*)  
 parathyroid hormone and, inorganic phosphate transport, renal cells, F389  
 prediction of stress, smooth muscle (swine), C251  
 regulated phosphorylation, parotid gland, G70  
 regulation of surfactant protein A mRNA, fetal lung, L488  
 response to, substance P effects, parietal cells, G646  
 sodium-hydrogen exchanger, renal brush-border membrane, F867  
 sodium transport and, urinary bladder (frog), F425  
 vasopressin interaction, inner medullary collecting duct, F679  
 VIP-induced alterations, lower esophageal sphincter, G239
- Adenosine monophosphate deaminase ammonia flux, exercise and recovery, E170  
 IMP formation and, skeletal muscle, C409
- Adenosine triphosphatase  
 mitochondrial inhibition, ischemia in slow and fast heart rate, H1759  
 myofibrillar activity  
 calcium-sensitive, myocardial stunning effects, H813  
 tracheal smooth muscle, L53  
 myosin, temperature acclimation and (fish), R237
- Adenosine triphosphate  
 dependence, cytoplasmic pH, lung macrophages, C586  
 depletion  
 hydrogen peroxide and, macrophages, L87  
 ischemia in slow and fast heart rate, H1759  
 myocytes, reduced arachidonate metabolism and, H582  
 energy dependence, sodium-calcium exchange, C302  
 enterocytes depleted in, glycyl-L-sarcosine transport and (chick), G775  
 fatigue during prolonged exercise, muscle, C834  
 hydrogen peroxide exposure, alveolar type II cells after, L57  
 impaired insulin secretion, PTH chronic excess and, F210  
 lung injury, after short-term hyperoxia, L451  
 myosin light chain kinase, smooth muscle cell contraction and, C315  
 nucleotide pools, heart and brain during shock, H1781  
 potassium channel activity and, cortical collecting tubule, F494  
 potassium channels sensitive to, G protein effects, heart, H820  
 potassium fluxes, ventricular myocytes, H962  
 production, mitochondria, microsomes of muscle, E204  
 synthase, regulation, heart, H1264  
 turnover, IMP formation and glycolysis with, skeletal muscle, C409
- Adenylate cyclase  
 apical membrane sodium conductance and, cortical collecting duct, F823  
 desensitization, renal membrane, aging and, F444  
 dopamine receptor coupling, proximal convoluted tubules, F971  
 dopamine stimulation of, sodium-hydrogen exchanger activity and, renal brush-border membrane vesicles, F297  
 neuropeptide Y receptors, distinction in vivo and in vitro, E131
- Adenyl cyclase  
 AVP stimulation of, RIMCT cells, C693  
 chloride secretion and,  $\beta$ -adrenergic mediated, L426  
 receptors: *see* Receptors
- ADH: *see* Antidiuretic hormone
- Adipocytes  
 candidate gene regulation, body weight (monkey), R1148  
 differentiation, sodium-potassium-ATPase and, C968  
 lactate production, refeeding after fasting, E865  
 morphology, spontaneous obesity in aging males, model, R1117  
 $\alpha_2$ -responsiveness, during prolonged starvation (hamster), E80
- Adipose tissue  
 arachidonic and linoleic acid absorption, fatty acid deficiency and, G116  
 brown: *see* Brown fat  
 growth, spontaneous obesity in aging males, model, R1117  
 oxygen consumption of, E599  
 $\alpha_2$ -responsiveness, during prolonged starvation (hamster), E80  
 white, glucose uptake, cold effects, R1043
- Adipsin, reduced, adrenal steroids and, obesity, R184
- Adrenalectomy  
 brown fat, atrophic state of, R61  
 brown fat metabolism after, obesity, E362  
 delayed-type hypersensitivity, fever effects on expression of, R1  
 kallikrein release, polarity of, kidney, F752  
 reduced adipsin mRNA and, obesity, R184  
 refeeding after low calorie intake, corticosterone effects on energy expenditure, E658
- Adrenal gland, natriuretic peptide binding sites, autoradiography, E246
- Adrenaline: *see* Epinephrine
- Adrenal medulla  
 enlarged, diminished epinephrine response to hypoglycemia and, R998  
 function, hemorrhage effects in anesthesia, H1134  
 oxygen consumption, catecholamine secretion effects, H681  
 thermal nociception, ACTH and norepinephrine release by blood loss, R1236
- Adrenal medullary cells, synthesis of chromaffin vesicles, C161
- Adrenal nerve, activity, hemorrhage effects in anesthesia, H1134
- Adrenal steroids, reduced adipsin mRNA and, obesity, R184
- $\beta$ -Adrenergic agonist, cathepsin activity and, myotubes, E822
- Adrenergic denervation, with diabetes mellitus, H55
- Adrenergic fibers, neural control, goblet cell secretion, airway (guinea pig), L108
- Adrenocorticotrophic hormone  
 plasma levels, feeding effects, preweaning life (baboon), R157  
 release, thermal nociception and, blood loss, R1236  
 vasopressin and drinking, baroreceptor effects, R618
- Aequorin, prediction of stress, smooth muscle (swine), C251
- Aerobic capacity  
 quantitative genetics (snake), R986  
 temperature acclimation, metabolic response to, muscle (fish), R245
- Afferents  
 cardiac, input to solitary tract nucleus, synaptic mechanism regulation of, H653  
 muscle, response to static contractions, cyclooxygenase blockade and, H745  
 ventricular, kidney function and, F18
- Afterload, ventricular function and, closed chest, H619
- Aggregin, cleavage, plasmin-induced platelet aggregation, C862
- Aging  
 body composition, resting metabolic rate and, E233  
 cerebrovascular response and, global ischemia (pig), H1551  
 downregulation of PTH receptors, renal membranes, F444  
 endurance training and, metabolic rate and hormones in healthy men, E66  
 erythrocytes, oscillatory shear flow and, H1071  
 insulin receptor kinase changes, skeletal muscle and liver, E27  
 late-onset hypertension, myocardial microvessels, H1681  
 norepinephrine kinetics, posture and sodium restriction effects, E422  
 peptide transport system, opiates, blood-brain barrier, E1  
 preweaning life, feeding effects on preweaning (baboon), R157  
 secretory capacity and, small intestine, G474  
 spontaneous obesity, male, model, R1117  
 ventricular remodeling in, severe myocardial dysfunction induced by, H1086
- Air, temperature, regulation (coypos), R1220
- Airway  
 bronchiolar epithelial cells, arachidonic acid metabolism and ion transport in, L213  
 epithelial cells  
 eicosanoid release, acrolein effects (bovine), L222  
 growth in, cysteinyl leukotrienes and, L255  
 epithelial chloride channels, calcium-dependent activation, phosphorylation and, L410  
 epithelium  
 apical membrane chloride channels, C295  
 chloride secretion, duramycin effects, C450



- mechanical removal, mast cells and granules with (ferret), L372  
neonate, L415  
plasticity in, L38  
sodium-potassium-chloride cotransport, C557  
glands,  $\alpha$ -adrenergic regulation of secretion, L198  
goblet cell secretion, neural control of (guinea pig), L108  
histamine stimulation, *c-fos* expression, L365  
isocyanate exposure, T-cell activation and, L320  
muscarinic receptors, pre- and postjunctional, L304  
parasympathetic ganglia, electrophysiological properties of neurons in (guinea pig), L403  
response, asthma, cellular LTB<sub>4</sub> production and (sheep), L136  
smooth muscle, epithelium-dependent contraction, eosinophil MBP and, L294  
smooth muscle cells  
dihydropyridine-sensitive calcium channels, L468  
potassium currents in, L384  
Alanine  
brain, changes during anoxia (turtle), R376  
hepatic nerves, exercise and, E195  
lactate formation from glucose, E397  
mechanism of cytoprotection, kidney, F80  
metabolism, liver and skeletal muscle in, E677  
sodium-coupled uptakes and, proximal tubular cells, F816  
 $\beta$ -Alanine, transport, intestinal brush-border membrane vesicles, G372  
Albumin  
component, changes in hydraulic conductivity (frog), H1357  
copper accumulation and, fibroblasts and hepatocytes, G219  
copper transport and, fibroblasts, G212  
nondefatted, coronary resistance increased by, saline-perfused heart, H1606  
serum, capillary permeability (frog), H1351  
synthesis, measurement of, E797  
Alcoholism, peptide transport system, opiates, blood-brain barrier, E1  
Aldose reductase  
inhibition  
osmotic effectors, renal medulla, F733  
permeability at blood-retinal barrier in diabetes, R601  
Aldosterone  
ANF and, blood pressure control, R973  
angiotensin II-induced hypertension and, R102  
apical vessels and, distal colon, F65  
glucocorticoid stimulation, sodium-potassium transport, collecting duct cells, F672  
morphological response to, F88  
plasma, salt taste, circadian rhythm in, R931  
regulation, basolateral potassium channels, alveolar epithelium (frog), L230  
salt intake, calcium deprivation and, R411  
sodium-potassium pump and, cortical collecting tubules, F40  
Alkaline phosphatase  
intestinal  
mRNA encoding of, G93  
phospholipase effects, G618  
mechanism of cytoprotection, kidney, F80  
Alkalosis  
cerebral blood flow during, arterial pH modulation of, H34  
chloride-deplete, depressed distal tubule acidification and, F636  
maturation of bicarbonate transport, collecting duct, F801  
metabolic  
angiotensin II role in glomerulotubular balance, F72  
cell types and, cortical collecting duct, F778  
Allergy, food, jejunal smooth muscle contraction and, G6  
Allometry, body composition and energy expenditure, basal metabolic rates and (bird), R333  
Allopurinol  
microvascular injury, ischemia/reperfusion-induced, model, G134  
surfactant metabolism and, L328  
Altitude  
high  
coronary and myocardial adaptations, H1667  
hepatic cytochrome P-450 in, C654  
Alveolar cells  
type II  
development, fetus and neonate, L359  
differentiation, arachidonate metabolism and, L73  
growth factors for, derived from lung fibroblasts, L247  
hormonally regulated proteins in, fetus, L283  
metabolic changes after hydrogen peroxide, L57  
palmitic acid uptake, L206  
surfactant clearance and recycling, L1  
surfactant metabolism, reactive oxygen species and, L328  
Alveolar compartment, radiolabeled lamellar bodies and, L238  
Alveolar epithelium, basolateral potassium channels, aldosterone regulation of (frog), L230  
Amiloride  
apical sodium channels, colon (turtle), C668  
choleate-induced bicarbonate-rich cholestasis and, liver, G453  
derivatives, pH regulation, endothelial cells, C640  
early sodium chloride deprivation, taste response recovery and, R786  
effects on sodium and calcium, myocardium, C940  
electrogenic sodium-hydrogen antiporter, antennal glands (lobster), F758  
endogenous, sodium-chloride transport and, proximal colon (pony), G62  
energy dependence, vascular smooth muscle cells, C302  
hydrogen and bicarbonate flux and, distal colon, C35  
metabolism, confluent LLC-PK<sub>1</sub> cells, C84  
microperfusion, inner medullary collecting duct, F222  
pH regulation  
kidney cells (opossum), C110  
vascular smooth muscle, C134  
sodium and chloride transport, tracheal epithelium (horse), L459  
sodium-calcium exchange, pancreatic islets, E844  
sodium-chloride absorption sensitive to, cortical collecting duct, F519  
sodium chloride transport and, inner medullary collecting duct, F258  
sodium-hydrogen exchange and cell proliferation with, AR42J pancreatic cell line, G842  
sodium transport, feeding effects, gastric antrum, G998  
transepithelial acidification and, proximal tubules, C103  
Amino acids  
anionic, transport systems, placenta, C47  
brain, changes during anoxia (turtle), R376  
cerebral dysfunction and, after portacaval shunting, E104  
dietary limiting  
prepyriform cortex, food intake and, R709  
prepyriform cortex, meal patterns and, R716  
excitatory  
medial nucleus tractus solitarius, H1307  
medial nucleus tractus solitarius neurons (guinea pig), H1389  
ileal infusion, motor pattern of small intestine and, G78  
imbalance, anorectic response to, serotonin receptor antagonist effects, R627  
infusion, duodenal, gastric emptying and (pig), G676  
intravenous, gallbladder emptying and hormone release, G173  
load, disposal, glucagon role in, E225  
mechanism of cytoprotection, kidney, F80  
membrane transport, different protein diet effects, liver, E614  
metabolism  
quantitative partition (pig), E483  
renal, E437  
ornithine decarboxylase expression, LLC-PK<sub>1</sub> cells, C647  
systemic administration, single-nephron response to, F739  
tracer kinetics, starvation effects, muscle, E477  
transport  
brush-border membrane vesicles, intestine (eel), R1181  
denervated skeletal muscle, E148  
sarcolemmal vesicles in skeletal muscle, E284  
transporter development, intestine, G544  
uptake, leg tissue, euglycemic hyperinsulinemia effects, E185  
2-Aminobutyrate, oxidation, quantitative partition (pig), E483  
 $\gamma$ -Aminobutyric acid, brain, changes during anoxia (turtle), R376  
*p*-Aminohippurate, sodium-coupled transport, urinary bladder (crustacean), R147  
5'-Aminolevulinate synthase, activity, overloaded skeletal muscle, C310

- 2-Amino-5-phosphonovalerate, excitatory, medial nucleus tractus solitarius, H1307
- Amiodarone, intermediary metabolism, thyroid slices, E529
- Ammonia  
appearance, proximal tubule, luminal ammoniogenesis and, F402  
cerebral dysfunction and, after portacaval shunting, E104  
glutamine transport and, mitochondrial, F863  
metabolism, exercise and recovery, E170  
oxygenation state and, skeletal muscle, C26  
pathways, apical and basolateral membrane, proximal tubule, F587  
production, diaphragm, high-intensity exercise, H1185
- Ammoniogenesis  
adaptation to acidosis, renal, R277  
luminal, ammonia appearance and, proximal tubule, F402
- Ammonium  
glutamate dehydrogenase effects, nephron segments, F53  
glutaminase activity, cortical and medullary tubule segments, F961
- Amphotericin B, basolateral potassium channels, aldosterone regulation of, alveolar epithelium (frog), L230
- Amylase  
release, streptolysin O-permeabilized pancreatic acini, G157  
secretion, sustained calcium ion increase and, pancreatic acinar cells, G792
- Amylin, glucose metabolism and, E457
- Analytical skills, undergraduate physiology, SI
- Anaphylatoxin, C5a, pulmonary artery response to, H1325
- Anesthesia  
general, actions of pentobarbital, H1743  
halothane, flow-independent pulmonary vasoconstriction and, H74  
sensitivity (pig), R133
- Anesthetics  
halogenated, negative inotropy, ventricular myocardium (ferret), H827  
local, estimatability of ion channel blockade, model, H626  
volatile, effects on hearts, H1118
- Anestrus, cold-induced, diet and body fat effects (hamster), R1198
- ANF: *see* Atrial natriuretic factor
- Angiogenesis, growth regulation, vascular system, R393
- Angiotensin  
hemodynamic response and, aortic cross-clamping, H68  
long-term arterial pressure control, computer and graphic models, R865  
pulmonary vasoconstriction, halothane and, H74  
regulation of plasma ANF, afterload, awake state, H1736  
renal vascular response, genetic hypertension, F372  
salt appetite and, R729  
salt intake, calcium deprivation and, R411  
vagal stimulation, diminished cardiovascular responsiveness to, R842  
vasoconstrictor effects of, renal, nifedipine prevention, F304
- Angiotensin I, renin activity, progesterone-cortisol interaction in, R350
- Angiotensin II  
afferent arteriolar responses to, prostaglandin effects, F157  
cellular hypertrophy and, proximal tubular cells, F768  
circulating, drinking behavior and, R531  
glomerulotubular balance and, F72  
hypertension  
chronic lymph flow and transcapillary fluid flux during, R1205  
salt sensitivity in, R1012  
long-term influence, abolition of, H543  
lower body negative pressure, renal responses, F573  
prediction of stress, smooth muscle (swine), C251  
pressure-overload hypertrophy and, heart, H324  
renal vasoconstriction caused by, protein kinase C role in, C421  
renin gene expression and, F882  
response  
fetoplacental (sheep), H473  
vasoconstriction, fetoplacental (sheep), H464  
restoration of TGF, volume expansion and, F565  
stimulation, protein synthesis, heart cells, H610  
vasculature response to, uterine and umbilical (sheep), H197  
vasoconstrictor infusion, autoregulation during, H1270  
vasopressin and drinking, baroreceptor effects, R618
- Angiotensin-converting enzyme, activity, vascular, abolition of, H543
- Angiotensin-converting enzyme inhibitor  
hemodynamic response and, aortic cross-clamping, H68  
salt appetite, thirst and, R736
- Angiotensin I-converting enzyme, inhibition, renin mRNA distribution during, F660
- Angiotensin system, central, hypertonic resuscitation and, severe hemorrhage, H1752
- Anions  
foreign, substitution for chloride, erythrocytes, C819  
organic, transport, sodium-coupled, urinary bladder (crustacean), R147  
selectivity  
chloride channel and, pancreatic duct cells, C752  
inhibition of chloride channels and, C295
- Anoxia  
cardiac tissue exposed to, force and acid-base state of (turtle), R15  
differential responses, renal proximal tubules, F176  
endothelium, reoxygenation, prostacyclin formation after, C738  
intracellular pH and inorganic phosphates during, heart, <sup>31</sup>P-NMR measurements of (turtle), R521  
neurotransmitter changes, brain (turtle), R376  
reoxygenation and  
endothelial cell injury induced by, H925  
microvascular injury induced by, model, G134
- skeletal muscle, prediction by glutamate dehydrogenase, C26
- ANP: *see* Atrial natriuretic peptide
- 9-Anthracene carboxylate, acid secretion and, parietal cells, G536
- Antiarrhythmic drugs  
blockade, potassium channels, heart, H1609  
electrophysiological actions of, general anesthesia, H1743
- Antibiotics  
cardiovascular support versus, septic shock, model, H1440  
gastrointestinal motor effects and, G355
- Anticholinergics, pancreatic secretion and, G198
- Antidiuresis  
specificity and correlation in, kidney, C920  
subnormal levels of AVP and, R53
- Antidiuretic hormone: *see also* Vasopressin  
fluorescent analogue for hydrin 1, E524  
internalization, bladder (toad), C462  
lipid order and, MDCK cells, F95  
positive inotropic action of, endocardial endothelium in, H1148  
renal responses, ventricular afferents and, F18  
response to adrenergic stimulation, anterior third ventricle (duck), R294  
subnormal levels of AVP and, R53  
synergistic actions, cortical collecting duct, F147  
water channels, proton permeability, F366  
water permeability, inner medullary collecting duct membranes, F986
- Antiglucocorticoids, development of obesity and, R539
- Antioxidant enzymes, hepatic, chronic hypoxia, C654
- Antioxidants  
dietary, bioavailability of, G524  
therapy, myocardial stunning, H889
- Aorta  
adenosine response, ontogeny response (guinea pig), H1637  
cross-clamping, hemodynamic response to, vasoconstriction and, H68  
endothelial cell denudation, fatty acid metabolism and, H442  
energy dependence, vascular smooth muscle cells, C302  
insufficiency, captopril in volume overload, H796  
parasite products, endothelium-dependent relaxation, H648  
quantitative and autoradiographic analyses,  $\alpha$ -adrenergic and serotonergic receptors, H1343  
stenosis, renal responses to hypotension and, awake state, F18  
thoracic, relaxation mediated by adenosine, H62
- Aortic artery, myosin light chain phosphorylation, alteration by phorbol esters, C769
- Apnea, sleep, cardiac arrhythmias and, R282
- Apolipoprotein B, lymphatic, intestinal transport, G709
- Apolipoprotein C, serum factor effects, hepatocytes, G15
- Arachidonate  
cerebral vascular activity and, newborn (pig), H1230

- 15-lipoxygenase product of, transformed erythroid cells, C849  
metabolism, cardiac myocytes, H582
- Arachidonic acid**  
absorption and metabolism, essential fatty acid deficiency, G116  
chemotactic peptide effects, intestine, G947  
cytochrome P-450 metabolites of, dilation of cerebral arterioles, H1171  
growth and cysteinyl leukotrienes, airway epithelial cells, L255  
lethal injury, cardiac myocytes, C325  
metabolism  
  alveolar type II cell differentiation, L73  
  clara cells, L213  
  late airway response in asthma and (sheep), L136  
neutrophil adhesion and, mesangial cells, F809  
release  
  acrolein effects, airway epithelial cells (bovine), L222  
  elevated extracellular potassium and, MDCK-D1 cells, C224  
reoxygenation, anoxic endothelium, C738
- Area postrema**  
interstitial solute dispersion, microvascular specializations, R1131  
saturable binding sites, pancreatic polypeptides, G687  
sinoaortic denervation, cerebral, baroreceptors and metabolism, R305
- Arginine**  
synthesis  
  localization along nephron, F916  
  renal, E437
- L-Arginine**  
cerebral circulation, nitric oxide effects, H1216  
endothelium-dependent, brain microvessels, H1396  
pathway  
  activation by bradykinin, serotonin, and clonidine, coronary arteries, H1433  
  effects on vascular responsiveness, endotoxemia, H1038  
  relaxation and cGMP formation dependent on, vascular smooth muscle, H1813
- Argininosuccinate synthase**, synthesis, along nephron, F916
- Arrhythmias**  
atrial, inhomogeneity in conduction, H1254  
  calcium waves, myocytes, H940  
  cardiac  
    general anesthesia, H1743  
    sleep apnea and, R282
- Arsenate**, inhibitory influences of, skinned skeletal and cardiac muscle, C933
- Arterioles**  
afferent  
  endothelin effects, kidney, F217  
  responses to vasoconstrictor agents, prostaglandin effects, F157  
  tubuloglomerular feedback interactions, F60  
  cerebral, oxygen and arachidonate effects, newborn (pig), H1230  
  coronary, flow-induced dilation, H1063  
  intestinal, maturation of, G282  
  late-onset renal hypertension, aging myocardium, H1681  
  reactivity, intramural diffusion barrier effects, H574  
  renal, ANP effects, F936  
  resistance, contraction, pertussis toxin effects on neuropeptide Y, H1427  
Arteriovenous fistula, enalapril and response to ANF, heart failure, R84  
Ascorbate, ferrylmyoglobin reduction, diaphragm, C995  
Aseptic abscess, turpentine injury, protein metabolism after, model, E763  
Asialoglycoprotein, processing, microfilaments and, developing liver, G639  
Aspartate, activation, intrathoracic ganglionic neurons, H1108  
Asphyxia, cerebrovascular responses to, prostanoic effects, newborn (pig), H662
- Asthma**  
cysteinyl leukotrienes and growth, airway epithelial cells, L255  
exposure to isocyanates, T-cell activation and, L320  
histamine stimulation, *c-fos* expression, L365  
increased myosin phosphorylation, tracheal smooth muscle, L53  
late airway response, LTB<sub>4</sub>, cellular production and (sheep), L136
- ATPase: see** Adenosine triphosphatase; Hydrogen-potassium-ATPase; Sodium-potassium-ATPase
- ATP: see** Adenosine triphosphate
- Atrial cells**  
   $\beta$ -agonist sensitivity in, failing heart, H1009  
  electrophysiological activity in, mathematical model (bullfrog), H370
- Atrial natriuretic factor**  
  blood pressure control and, sodium and aldosterone in, R973  
  cGMP and, sodium chloride transport in inner medullary collecting duct, F258  
  cGMP synthesis and, inner medullary collecting duct subsegments, F535  
  endogenous, collecting duct function and, F415  
  endothelin and, experimental congestive heart failure, F312  
  erythropoietin secretion in response to, renal carcinoma cells, C427  
  influence, intravascular volume displacement (pig), H1595  
  inhibition of mitogenesis, mesangial cells, E312  
  left atrial compliance, H1006  
  microinjection of, ventrolateral medulla, cardiovascular effects, R32  
  microperfusion, inner medullary collecting duct, F222  
  modulation, tubuloglomerular feedback, kidney, R97  
  plasma, regulation in afterload, awake state, H1736  
  pulmonary circulation, EDRF role in, at birth, H1921  
  receptors: *see* Receptors  
  release  
    modulation by endothelium-derived relaxing factor, H982  
    natriuresis and, high-output heart failure, H1374  
  neural control of, hypertension (pig), H735  
  renal and cardiovascular function, modification of, men, F832  
  renal response to, heart failure, R84  
  volume expansion, renal sympathetic nerves and, fetus (sheep), R1050
- Atrial natriuretic peptide**  
  actions, proximal tubule, dopamine, receptor blockade effects, F138  
  before and after heart failure, H1643  
  binding sites, brain, E246  
  capillary filtration and, forearm, H258  
  capillary permeability (frog), H1351  
  cGMP and, epicardial coronary dilation and, H340  
  circulatory and renal actions of, sympathectomy effects, R1275  
  fluid excretion and, after cardiac denervation, R70  
  infusion, vasoconstriction after autonomic blockade, awake state, R813  
  intrarenal infusion, arterial pressure and, R585  
  lymphatics and (cow), H42  
  plasma, levels, atrial appendages in modulation of, awake state, R1017  
  receptors: *see* Receptors  
  renal arterioles and, F936  
  secretion, basal and stretch-augmented, atria, C801
- Atriopeptin II**, circulatory and renal actions of, sympathectomy effects, R1275
- Atrioventricular conduction**  
  heart rate and, separate parasympathetic control, H536  
  irregular pacing and fibrillation, heart atria, H1015
- Atrioventricular interval**, ventricular refractoriness and, H1463
- Atrioventricular node**  
  parasympathetic postganglionic pathways, H1504  
  rhythm: *see* Rhythm
- Atropine**  
  ganglionic, modulation of release by muscarinic and nicotinic receptors, R288  
  pressor response, stimulation of nucleus ambiguus, R955  
  water and electrolyte absorption, meal-stimulated, absorption, G402
- Autonomic nervous system**  
  control, heart rate and atrioventricular conduction, H536  
  pathophysiology, heart failure, H689  
  reflex control of, cyclooxygenase blockade and, H745  
  thermal nociception, ACTH and norepinephrine release by blood loss, R1236
- Autonomic responses**,  $\omega$ -conotoxin, awake state, R427
- Autophosphorylation**, insulin receptor kinase changes, aging and, skeletal muscle and liver, E27
- Autoradiography**  
  insulin binding, skeletal muscle, E517  
  natriuretic peptide binding sites, brain, E246  
  oxytocin receptors, during development, kidney, F872  
  renal ANP receptors, spontaneous hypertension, F605

- Autoregulatory response, regional, infusion of vasoconstrictor agents, awake state, H1270
- Autotransplantation, pancreatic islets, altered blood flow regulation in, E52
- AVP: *see* Vasopressin, arginine
- Awake state
- ANP plasma levels, atrial appendages and, R1017
  - aortic blood flow measurement, Doppler technique, H448
  - autonomic blockade, ANP infusion and vasoconstriction after, R813
  - blood pressure oscillations, identification of, H1050
  - central effects of substance P and somatostatin, streptozotocin treatment and, R405
  - chronic portal venous hypertension, responses to hypotension in, G48
  - $\omega$ -conotoxin, autonomic and behavioral responses to, R427
  - graded hemorrhage, renal response to (pig), R119
  - hypoxemia and hypercapnic acidosis, vasopressin role in, R690
  - hypoxia and hypercapnia, body temperature effects, R492
  - infusion of vasoconstrictor agents, regional autoregulatory response to, H1270
  - plasma ANF, regulation in afterload, H1736
  - postprandial hepatic bile flow, fasting effects (opossum), G745
  - pregnancy, hemorrhage effects on kidney, F945
  - pressor effects of EDRF, virgin and gravid rats, F293
  - pressure natriuresis, neurogenic control of, F466
  - pulmonary circulation, halothane anesthesia effects, H74
  - renal response to hypotension, intracoronary veratrine and aortic stenosis effects, F18
  - sympathectomy effects, blood pressure, H1337
  - synchronized activity, cardiac sympathetic nerve, R499
  - urinary sodium loss, servo-controlled replacement of, R313
  - vasopressin secretion, splanchnic control of, E19
- Axon, giant, magnesium-dependent sodium efflux (squid), C541

## B

- Bacteremia, hyperdynamic, prostaglandin effects on microcirculation, H728
- Bacterial toxin, permeability and chloride secretion with, intestinal, G165
- Barium
- contracture induced by, myocardium, metabolism and, H1566
  - potassium channels and, gallbladder epithelium, C56
- Barium currents, basal prolactin secretion and, single male lactotropes, C949
- Barodenervation, normalization of arterial pressure after, R1172
- Basilar artery
- endothelium-dependent dilation, chronic hypertension, H1455
  - tone, nitric oxide role in, H1216

- Bathocuproine disulfonate, cyst(e)ine metabolism and, hepatocytes, E443
- BAY K 8644
- leukotrienes and, positive inotropism, heart, H1239
  - stimulus-secretion coupling, E856
- BAY R 5417, calcium channels sensitive to, airway smooth muscle cells, L468
- Behavior
- adjustments, sham feeding, R1228
  - cardiovascular reactivity and, H248
  - energetics, schedule-induced activities, R485
  - performance, temperature change effects, R191
  - semiaquatic, temperature regulation and (coypus), R1220
- 4-Benzamido-4'-aminostilbene-2-2'-disulfonic acid, anion-transporting epithelia, C439
- Benzodiazepines, injection, circadian period changes and (hamster), R514
- Betaine, aldose reductase inhibition of, renal medulla, F733
- Bicarbonate
- absorption, proximal, intracellular calcium effects, F451
  - acidification, during correction of chloride-deplete alkalosis, F636
  - <sup>13</sup>C-labeled, washout kinetics, metabolic rate effects, R163
  - copper uptake dependent on, erythrocytes, C570
  - flux, apical surface, distal colon, C35
  - processes independent of, outer medullary collecting duct cells, F902
  - reabsorption, angiotensin II role in glomerulotubular balance, F72
  - secretion, blood flow and, hypovolemia effects, duodenum, G179
  - sulfate and oxalate exchange for, basolateral membrane, ileum, G807
- transport
- cell types and, cortical collecting duct, F778
  - maturation of, collecting duct, F801
  - pancreatic duct cells, C752
  - proximal tubules, C103
- Bicarbonate current, forskolin-induced, apical membrane of corneal epithelium (frog), C215
- Bicuculline, dorsal motor nucleus, gastric effects of, G321
- Bile acids
- binding sites, ileal plasma membrane, G394
  - DBcAMP effects, liver, G727
  - hyperdynamic circulation and, portal hypertension, G21
- Bile flow
- CCK receptors, sphincter of Oddi, G873
  - DBcAMP effects, liver, G727
  - postprandial, liver, fasting effects, awake state (opossum), G745
- Bile salts
- pancreatic growth induced by, CCK mediation of, G86
  - phosphatidylcholine composition and, hepatic high-density lipoproteins, G205
- Biliary tract, CCK receptors, sphincter of Oddi, G873
- Bilirubin, localization, basolateral plasma membrane, proximal tubule, F559

- Bilitranslocase, localization, basolateral plasma membrane, proximal tubule, F559
- Biomechanics, excised ventricular epicardium, H101
- Biostatistics, noisy data, H1305
- Biotin
- transport, basolateral membrane vesicles, liver, G865
  - uptake, oocytes (frog), C397
- 2',7'-Bis(carboxyethyl)-5,6-carboxyfluorescein, pH regulation, kidney cells (opossum), C110
- 2',7'-Bis(2-carboxyethyl)-5,6-carboxyfluorescein, fluorescence, ventricular myocytes, H973
- Bladder: *see* Gallbladder; Urinary bladder
- Bleomycin, type IV procollagen mRNA and, pulmonary, L47
- Blockade
- $\beta$ -adrenergic
  - cardiac responses (seal, pig), R849
  - norepinephrine effects on insulin sensitivity, E210
  - dopamine-receptor, proximal tubule ANP actions and, F138
  - ganglion, ANP-induced vasoconstriction, awake state, R813
  - ion channel, estimatability of, model, H626
  - opioid, renin and pressor responses to, naloxone effects, E432
  - quinidine, potassium channels, heart, H1609
- Blood
- chemistry, fasting duration effects, neonate (seal), R1086
  - constituents: *see* specific constituent
  - factor, resistance and tight junctions, MDCK cells, C577
  - microvascular oxyhemoglobin saturations, cryospectrophotometry, H1912
  - perfusate, distribution space in, G32
  - reservoir, skin, during heat stress, H1796
  - viscosity, perfusate rheology effects, H603
- Blood-brain barrier
- endothelial permeability, charge effects on, H162
  - glucose transport, chronic vs. acute hypoglycemia, E729
  - insulin uptake, from plasma, E378
  - interstitial solute dispersion, microvascular specializations, R1131
  - opiate transport, peptides and, E1
  - permeability and edema and, hypertension-induced, H497
  - transport
  - cerebral dysfunction after portacaval shunting, E104
  - cyclofoxy, H1278
- Blood flow: *see also* Circulation; Microcirculation
- adrenal cortical and medullary, catecholamine secretion effects, H681
  - aortic, Doppler technique, awake state, H448
  - autoregulation, long-term arterial pressure control, model, R865
  - cerebral
  - adenosine regulation of, H1703
  - asphyxia and reventilation effects, prostanooids and, newborn (pig), H662



# SUBJECT INDEX TO VOLUME 259

collateral perfusion to, H560  
 cyclofoxy enantiomer kinetics in, H1278  
 during hyperammonemia, arterial pH modulation of, H34  
 energy metabolism and, during stress, H269  
 global ischemia (pig), H1551  
 interleukin 1 $\alpha$  effects (piglet), H1486  
 potassium dilation of arteries, H902  
 changes, perinatal aortic growth relations (lamb), H1247  
 colonic vasodilation, VIP antagonist and, G253  
 coronary  
   convection-diffusion model, H167  
   endothelin effects, newborn (pig), H1613  
   isoproterenol and, H346  
   left atrial and ventricular microsphere injection, H635  
   pressure-flow relations, H603  
   resting, cholinergic regulation (swine), H109  
 duodenal, hypovolemia effects, G179  
 femoral,  $\beta$ -receptor subtypes in, H1575  
 fetoplacental response, vasoconstriction (sheep), H464  
 forearm  
   dietary fatty acids and, R1164  
   hand heating effects, E639  
 gastric mucosal  
   capsaicin-sensitive afferent fibers and, G1037  
   platelet-activating factor and, G140  
 hypoxia-induced arterial dilation, adenosine effects, G605  
 ileac, sinoaortic baroreceptor denervation, H720  
 intestinal, thromboxane effects, G430  
 limb, heat-induced vasodilation, dehydration (baboon), R1139  
 liver, portal venous and arterial relations, G1010  
 muscle  
   adenosine and active hyperemia, H1295  
   during hemorrhage, laser-Doppler flowmetry, H860  
 myocardial, pacing during, oxygen consumption and, H872  
 myocardial fiber strain, asynchronous activation, H300  
 portal, bile acid effects on hyperdynamic circulation, G21  
 rate, neuropeptide Y regulation of, myocardium, H1709  
 regional  
   responses to vasoactive intestinal contractor peptide, H1152  
   spinal cord, during hypothermia, H1649  
 regulation, altered, autotransplanted pancreatic islets, E52  
 renal  
   ANP effects, F936  
   lower body negative pressure, F573  
   nifedipine effects, F304  
   response to angiotensin and thromboxane, F372  
   responses to, awake state (pig), R119  
 response, fixed volume hemorrhage, H190  
 skin, during heat stress, H1796

umbilical placental, leukotriene C<sub>4</sub> effects, fetus (sheep), E851  
 uterine  
   cardiovascular, renal, and lung function in fetus, R1004  
   hypoxemia and (sheep), R703  
   volume and, baroreflex response to, R792  
 Blood pressure: *see also* Pressure  
 ANP infusion, intrarenal, R585  
 arterial  
   hypoxemia and, H1197  
   reflex response, isometric muscle contraction, H1380  
   sinoaortic baroreceptor denervation, H720  
 baroreflex control, forearm, dietary fatty acids and, R1164  
 control, ANF and, R973  
 EDRF effects, awake state, virgin and gravid rats, F293  
 fetoplacental response, vasoconstriction (sheep), H464  
 fetus, uterine blood flow effects, R1004  
 forearm ischemia, dynamic hand exercise and, R1156  
 hemorrhage, adrenal and renal nerve activity during, H1134  
 high, nifedipine effects, F304  
 high-salt intake effects, H1629  
 lipoxygenase pathway inhibition and, renovascular hypertension, H1774  
 microdialysis, histamine regulation, R507  
 modification, urodilatin effects, men, F832  
 neuropeptide receptors and, H174  
 obesity-induced hypertension, model, R981  
 oscillations, awake state, H1050  
 renal responses to, awake state (pig), R119  
 response to angiotensin and thromboxane, genetic hypertension, F372  
 streptozotocin treatment, awake state, substance P and somatostatin effects, R405  
 sympathectomy effects, awake state, H1337  
 vasoactive drugs, serotonergic neuron response to, R963  
 volume expansion, renal nerves and, fetus (sheep), R1050  
 Blood-retinal barrier, permeability changes, diabetes, aldose reductase inhibition and, R601  
 Blood volume: *see also* Volume  
 arterial pressure, hypoproteinemia and, H1317  
 changes, baroreflex response to, R792  
 fetal  
   restoration after rapid hemorrhage, H567  
   uterine blood flow effects, R1004  
 limb, heat-induced vasodilation, dehydration (baboon), R1139  
 long-term arterial pressure control, computer and graphic models, R865  
 regulation, ventricular afferents and, F18  
 Body  
   composition  
     age effects, E233  
     basal metabolic rates and (bird), R333  
     brown fat metabolism, adrenalectomy effects, E362  
     fat to carbohydrate oxidation, E650

size, paracellular intestinal absorption and, G290  
 Bombesin  
   gastrin release stimulated by, adenosine effects, G-cells, G556  
   pepsinogen release and, chief cells (guinea pig), G760  
   receptor: *see* Receptor  
 Bone  
   calcium labeling, scanning ion microprobe, E586  
   resorption, continual monitoring of, R679  
 Bowel, small, intrinsically denervated, functional studies, G226  
 Bradykinin  
   activation, L-arginine pathway, coronary arteries, H1433  
   endothelium-dependent dilation, basilar artery, chronic hypertension, H1455  
   leucine oxidation and, glucagon-induced, E239  
   receptors: *see* Receptors  
   regulation of eicosanoid biosynthesis, kidney cells, F698  
 Brain  
   autonomic and behavioral responses,  $\omega$ -conotoxin, awake state, R427  
   blood flow: *see* Blood flow, cerebral  
   cyclofoxy enantiomer kinetics in, H1278  
   development, transforming growth factor- $\alpha$  in, E256  
   dysfunction, portacaval shunting and, E104  
   fever, vasopressin and oxytocin responses, R1056  
   glucose utilization, chronic vs. acute hypoglycemia, E729  
   injury, ischemia, hypertension and hemodilution effects, H211  
   ischemia: *see* Ischemia  
   metabolic and hormonal activations, during hemorrhage, R305  
   metabolism, global ischemia (pig), H1551  
   microvasculature  
     endothelin effects, H1688  
     endothelium-dependent L-arginine, H1396  
   natriuretic peptide  
     collecting duct function and, kidney, F415  
     injection into ventrolateral medulla, cardiovascular effects, R32  
   natriuretic peptide binding sites, autoradiography, E246  
   neurotransmitters, changes during anoxia (turtle), R376  
   nucleotide pools, hemorrhage and resuscitation, H1781  
   pressor response to peripheral hyperosmolality, histamine regulation of, R507  
   saturable binding sites, pancreatic polypeptides, G687  
   sodium chloride concentration, mineralocorticoid escape and, F839  
 Brain stem  
   cardiovascular afferent input to, synaptic mechanism regulation of, H653  
   neurogenesis, respiratory rhythm and pattern, R879  
   neurons, sympathetic nerve relations, R561  
 Breathing: *see* Respiration

# Bronchi

- epithelium, mechanical removal, mast cells and granules in (ferret), L372
- histamine stimulation, *c-fos* expression, L365
- muscarinic receptors, pre- and postjunctional, L304
- smooth muscle cells, dihydropyridine-sensitive calcium channels, L468
- Bronchial arteries, responsiveness, adrenergic and cholinergic, H156
- Bronchial epithelial cells
  - isocyanate exposure, T-cell activation and, L320
  - urokinase and PAI-1 expression, TGF- $\beta_1$  modulation of, L262
- Bronchiolitis, pulmonary fibrosis and, L159

# Brown fat

- atrophy in
  - capsaicin desensitization and, R324
  - underlying mechanisms of, R61
- energetics of pregnancy, calorimetric study (hamster), R807
- glucose uptake, cold effects, R1043
- metabolism, adrenalectomy effects, obesity and, E362
- norepinephrine turnover, temperature effects, R90
- obesity, defective thermoregulatory thermogenesis and, E11
- RU 486 effects, development of obesity, R539
- thermogenesis, paraventricular nucleus lesions and, exercise, R579

# Brush-border membrane

- ileal
  - chloride-bicarbonate exchanger, G666
  - sodium-adenosine cotransport, G504
  - sodium-hydrogen exchanger in, G802
- intestine, alkaline phosphatase release, phospholipase effects, G618
- renal, sulfate inhibition of phosphonotrophic acid binding, F286
- sodium-glucose cotransporter, sequence homologies among, C605
- Brush-border membrane vesicles
  - intestinal,  $\beta$ -alanine transport, G372
  - intestine, lysine transport (eel), R1181
  - renal, dopamine inhibition of sodium-hydrogen exchanger, F297

# Bumetanide

- ethacrynic acid, renin secretion and, F539
- fluorescent protein binding proteins, anion-transporting epithelia, C439
- $^3\text{H}$ -labeled, sodium-potassium-chloride cotransport, airway, C557
- sodium and chloride transport, tracheal epithelium (horse), L459
- sodium-chloride absorption sensitive to, cortical collecting duct, F519
- sodium-potassium-chloride cotransport, retinal pigment epithelium, C29
- t*-Butyl hydroperoxide, lung injury, U74500A inhibition of, H144
- Butyrate, regulation, surfactant protein A mRNA, fetal lung, L488

# C

- Cachectin, interleukin  $1\beta$  and TNF, fever, R724
- Caffeine
  - ANP secretion, quiescent atria, C801
  - contractility, ventricular myocytes, H395

- differential effects, skinned fibers, heart (ferret), H1803
- Calbindin, vitamin D-dependent, physiology and biochemistry of, F195
- Calcitonin, calcium transport and, distal nephron segments, F408
- Calcitonin gene-related peptide
  - stimulation of acetylcholine release, myenteric plexus, G934
  - substance P and, motor response to capsaicin, colon, G889
- Calcitriol
  - changes, uremia independent of, phosphorus restriction effects, F432
  - developmental changes, spontaneous hypertension, F104
  - phosphorus and zinc deficiency, vitamin D $_3$  response to, E319
- Calcium
  - absorption
    - magnesium comparison, intestine, G720
    - vitamin D-independent, intestine, G631
  - activation dependent on, chloride channels, airway epithelium, L410
  - ANP and, dopamine $_1$ -receptor blockade effects, F138
  - anti-free radical agent effects on, heart, H137
  - binding proteins, vitamin D-dependent, F195
  - chloride efflux regulated by, phorbol ester-stimulated neutrophil membrane depolarization, C531
  - content
    - hypothermia effects, hypoxic myocytes, H333
    - sarcoplasmic reticulum, myocytes (guinea pig), H1222
  - cycling, muscle, temperature change effects, R197
  - cytosolic
    - angiotensin II in cardiac receptors, H610
    - monocytic line U-937, C77
  - phosphate uptake regulated by, HeLa cells, F727
  - PTH excess effects, F210
  - single cardiomyocytes, high-speed digital imaging, H230
  - transient elevations, inorganic phosphate transport and, OK cells, F485
  - deprivation, salt intake and, R411
  - developmental changes, spontaneous hypertension, F104
  - electrogenic sodium-hydrogen antiporter, antennal glands (lobster), F758
  - entry, calcium current facilitation and, H951
  - exchange, ventricular cells, H592
  - extracellular, resistance artery and small vein, H23
  - force and, substance P effects, ileal smooth muscle (guinea pig), C150
  - gastrin-releasing peptide and pepsinogen release, chief cells (guinea pig), G760
  - guanine nucleotides and, stimulation of IP $_3$  formation by, G410
  - handling, ketone bodies and islet function, E117
  - heat-shock response and, monocytic line U-937, C77
  - homeostasis, PTH-related, lactation and, E792

# intracellular

- acinar cells, tracheal submucosal glands, L345
- concentration, hydrogen peroxide and, macrophages, L87
- gallbladder smooth muscle contraction and, G1
- high-energy phosphates and, myocytes, H1851
- proximal bicarbonate absorption and, F451
- spatial dynamics of, vascular smooth muscle cells, C675
- intracellular buffering
  - atrial action potential, model (bullfrog), H370
  - cardiac pacemaker cell, model (bullfrog), H352
- ionophore A23187, epithelial permeability and, C69
- labeling, bone, scanning ion microprobe, E586
- low, heart arrested by, oxygen consumption in, H1142
- myocyte structure and function, cardiomyopathic heart (hamster), H1533
- myofibrillar activity sensitive to, myocardial stunning effects, H813
- overload, acidification and, myocardial ischemia, C169
- plasma, regulation in calcitonin infusion, E370
- production, lacrimal gland, G274
- regulation, sodium chloride, tracheal epithelial cells, L66
- release
  - exercise effects, sarcoplasmic reticulum (pig), H643
  - inositol production and, uterine cells (chicken), E872
- renal vasoconstriction, protein kinase C role in, C421
- role in tight junction formation, epithelial cells, C978
- sensitivity
  - norepinephrine-activated vascular smooth muscle, H2
  - skinned fibers, heart (ferret), H1803
  - twitch and tonic muscle fibers (snake), C911
- temperature and pH effects, muscle, R204
- tension induced by, skinned muscle fibers, C503
- transport
  - inotropic effects of low sodium, heart, H712
  - myocardial sarcolemma (trout), R453
  - PTH, calcitonin, and cAMP effects, distal nephron segments, F408
  - sodium-dependent, hepatocytes, G56
- uptake
  - cellular, membrane cholesterol and, H1933
  - vascular smooth muscle, compartmental analysis, R172
- Calcium-45, uptake, pancreatic islets, E844
- Calcium channels
  - activation, pertussis toxin pretreatment effects, peritoneal mast cells, C715
  - basal prolactin secretion and, single male lactotropes, C949
  - blockade, estimatability of, model, H626
  - dihydropyridine-sensitive, airway smooth muscle cells, L468



- increase, amylase secretion and, pancreatic acinar cells, G792
- L-type, embryonic heart cells (chick), H639
- pH-dependent block of, nicardipine, H1178
- protein kinase C and, release of norepinephrine and neuropeptide Y (guinea pig), R925
- voltage dependence and, arterial smooth muscle tone, C3
- voltage-dependent, calmodulin and insulin secretion, E856
- voltage-sensitive,  $\omega$ -conotoxin, awake state, R427
- Calcium channel blockers, magnesium, MDCK cells, C521
- Calcium currents
- facilitation, postrest recovery, calcium entry effects, H951
  - gadolinium effects, pituitary cells, C515
  - membrane-delimited stimulation of, heart cells, H284
  - membrane properties, neurons from neonatal hypertension, C389
  - T- and L-type, extracellular magnesium effects, atrial myocytes, H1842
- Calcium ionophores
- phospholipase activity and, alveolar epithelial cells, L439
  - potassium efflux, carbachol-induced, salivary gland, C904
- Calcium ions
- cytosolic free
    - HL-60 cells, C687
    - low extracellular calcium ion effects, MDCK cells, C19  - low extracellular, effects on calcium, sodium, and pH, MDCK cells, C19
  - mesangial cell, mitogen effects, F269
  - mitochondrial ATP synthase, regulation, heart, H1264
  - mobilization, distinction in vivo and in vitro, E131
  - myofilament sensitive to, hypoxia and reoxygenation, heart, H784
  - prediction of stress, smooth muscle (swine), C251
  - sustained increase, pancreatic acinar cells, amylase secretion relations, G792
- Calcium transients
- influence, sodium gradient, vascular smooth muscle, H409
  - rest decay of, ventricular myocytes, H395
- Calcium waves, propagation, myocytes, H940
- Calciuria, ANP-induced, dopamine<sub>1</sub>-receptor blockade effects, F138
- Calmodulin
- insulin secretion and, E856
  - renal vasoconstriction, protein kinase C role in, C421
- Calorimetry
- indirect
    - fat to carbohydrate oxidation, E650
    - study of starvation diabetes, E770
    - pregnancy energetics (hamster), R807
- Calpain, mediation, plasmin-induced platelet aggregation, C862
- cAMP: *see* Adenosine monophosphate, cyclic
- Candidate genes, regulation, body weight (monkey), R1148
- Capacitance
- intestinal venules, sympathetic activity and, H674
  - vascular, aortic chemoreceptors and, H933
- Capacitation, insulin release, pancreatic islets, E548
- Capillaries
- geometry, subepicardium and subendocardium, H204
  - insulin sensitivity, muscle, testosterone effects, E555
  - intestinal, maturation of, G282
- Capsaicin
- afferent fibers sensitive to, gastric mucosal blood flow, G1037
  - desensitization, atrophy in brown fat and, R324
  - motor response to, colon, substance P and CGRP effects, G889
- Captopril
- hypotension, thirst relations, R362
  - interaction with ibuprofen, glomerular and tubular function, F233
  - volume overload and, left ventricular, H796
- Carbachol
- apical sodium channels, colon (turtle), C668
  - inhibition, thyroid metabolism, E529
  - potassium efflux induced by, VIP and forskolin effects, salivary gland, C904
- Carbamylcholine, sustained calcium ion increase and, pancreatic acinar cells, G792
- Carbohydrates
- fat oxidation to, predictor of weight gain, E650
  - metabolism
    - hepatic, muscular work effects, E195
    - insulin effects, voluntary running, E706
- Carbon, phagocytosis of, pericentral regions of liver lobule, G814
- Carbon-14-butanol, blood flow, spinal cord, H1649
- Carbon dioxide
- bicarbonate and, pH regulation with, A10 cells, C471
  - body temperature effects, awake state, R492
  - partial pressure, adaptations to high altitude, H1667
  - pressure, renal cortex, F357
  - respiratory rhythms, chemoreceptor modulation of, R887
  - total, maturation of bicarbonate transport, collecting duct, F801
  - transport, metabolic rate and bicarbonate kinetics, R163
- Carbonic anhydrase II, gene expression, developing fundus, G108
- Carcinoma cells, renal, erythropoietin secretion, response to ANF, C427
- Cardiac cells: *see* Cardiomyocytes; Myocytes
- Cardiac output
- after hemorrhage and resuscitation, preheparinization effects, R645
  - ANP-induced vasoconstriction, awake state, R813
  - central angiotensin system, hypertonic resuscitation from hemorrhage and, H1752
  - distribution, atrophic state of brown fat, R61
- high-salt intake effects, H1629
  - response to graded hemorrhage, awake state (pig), R119
- Cardiac tamponade, opioid blockade during, awake state, H512
- Cardiomyocytes: *see also* Myocytes
- atrial, proliferation, H1826
  - membrane-delimited stimulation, calcium current, H264
  - mitochondrial ATP synthase in, H1264
  - single, cytosolic calcium in, high-speed digital imaging, H230
- Cardiomyopathy, calcium kinetics, myocyte structure and (hamster), H1533
- Cardioplegia
- hypothermic reperfusion, postischemic recovery and, H879
  - oxygen consumption, arrested heart, H1142
- Cardiovascular function, fetus, uterine blood flow effects, R1004
- Cardiovascular regulation, ANF injection, ventrolateral medulla, R32
- Cardiovascular support, antibiotics versus, septic shock, model, H1440
- Carnitine palmitoyltransferase, oxidation, exercise-induced decline in different muscle types, E266
- Carotid artery, adrenergic denervation, diabetes mellitus, H55
- $\beta$ -Casmorphins, absorption of, autoperfused small intestine (lamb, piglet), G443
- Catalase
- dilation, cerebral arterioles, H1171
  - lung injury, after short-term hyperoxia, L451
  - reoxygenation, anoxic endothelium, C738
  - sodium, calcium, and function, heart, H137
  - superoxide dismutase and, myocardial stunning, H889
- Catecholamines
- autonomic pathophysiology, heart failure, H689
  - blood pressure and, awake state, H1337
  - cAMP formation induced by, oxygen tension effects, erythrocytes (carp), C723
  - cerebral blood flow and energy metabolism, during stress, H269
  - content, platelet, sympathoadrenal activity and, E141
  - depression, endolymphatic sac direct current potential (guinea pig), R921
  - endocrine and fluid responses, fetal fluid loss (sheep), R745
  - fetal, response to maternal hypoglycemia, R1126
  - graded central hypovolemia, sympathetic activity during, H1197
  - kinetics, aging and, E422
  - neurotransmission, cardiac ganglion, neonate, H997
  - prolonged hypoxemia and (sheep), R703
  - release, elevated extracellular potassium and, MDCK-D1 cells, C224
  - renal, lower body negative pressure, F573
  - response, hypoglycemia, enlarged adrenal medulla and, R998
  - secretion, adrenal oxygen consumption and, H681

- Catecholamines (*continued*)  
 vasopressin and drinking, baroreceptor effects, R618
- Cathepsin, activity, cimaterol reduction of, myotubes and, E822
- Cation current, hyperpolarization activation of, enteric neurons (guinea pig), G966
- Cation-proton exchange, organic, methyl-nicotinamide transport by, liver membrane vesicles, G973
- Cations  
 organic  
 confluent LLC-PK<sub>1</sub> cells, C84  
 uptake and biliary excretion of, G973
- CCK: *see* Cholecystokinin
- Cecum  
 monosaccharide and amino acid transporters, ontogenetic development of, G544  
 water and ion handling in, G786
- Cefoxitin, cardiovascular support versus, septic shock, model, H1440
- Central nervous system  
 insulin uptake, from plasma, E378  
 regulation of cardiovascular afferent input, solitary tract nucleus, H653  
 substance P and somatostatin effects, streptozotocin-treated, awake state, R405  
 temperature change effects, R191  
 vagal control, lower esophageal sphincter pressure, G899
- Cerebral arteries  
 collateral perfusion to, H560  
 dilation, potassium and, H902  
 vasodilator nerve stimulation, mechanism of response, H1511
- Cerebral cortex  
 function, chronic vs. acute hypoglycemia, E729  
 microvasculature, endothelin effects, H1688  
 sensory, blood flow, adenosine regulation of, H1703
- Cerebral ventricles  
 anterior third, norepinephrine and norepinephrine agonists (duck), R294  
 asynchronously contracting, simulation of mechanoenergetics of, R1075  
 CRH injection, sympathetic activity and, R799  
 fourth, neuropeptide effects on behavior, R317
- Cerebrospinal fluid  
 composition, arginine vasopressin effects, hyperosmolar state, R1250  
 hyperammonemia, cerebral blood flow during, pH effects, H34  
 insulin uptake from plasma, E378  
 prostanooids, vasodilation and, recombinant interleukin 1 $\alpha$  (piglet), H1486
- cGMP: *see* Guanosine monophosphate, cyclic
- CGRP: *see* Calcitonin gene-related peptide
- Chief cells, pepsinogen release, gastrin-releasing peptide and (guinea pig), G760
- $\alpha$ -Chloralose, electrophysiological actions of, general anesthesia, H1743
- Chloramphenicol acetyltransferase, high glucose effects, proximal tubule, F705
- Chloride  
 alkalosis deplete in, acidification during correction of, F636  
 conductance, agonist-regulated, salt-secreting epithelial cells, C358  
 copper uptake dependent on, erythrocytes, C570  
 depletion, cell types and, cortical collecting duct, F778  
 efflux, calcium-regulated, neutrophil membrane depolarization, C531  
 fluorescent indicators sensitive to, development of, C375  
 flux, apical surface, distal colon, C35  
 foreign anion substitution for, erythrocytes, C819  
 intracellular, volume of single cells and, C998  
 permeability  
 cystic fibrosis, sweat duct cells, C842  
 cystic fibrosis pancreatic cells, C1010  
 reabsorption, angiotensin II role in glomerulotubular balance, F72  
 secretion  
 airway epithelia, C557  
 calcium-dependent activation, airway epithelium, L410  
 duramycin effects, airway epithelium, C450  
 newborn, maternal milk PGE<sub>2</sub> relations, G702  
 non-cAMP  $\beta$ -adrenergic mediated, L426  
 transport  
 parotid secretory granule membrane, C413  
 PCMBs inhibition of, plasma membrane, gut (sea hare), R1111  
 tracheal epithelium (horse), L459  
 Chloride-bicarbonate exchange  
 apical surface, distal colon, C35  
 parotid acini, G1044  
 secretory granule membrane, parotid gland, C413  
 Chloride-bicarbonate exchanger, brush-border membrane, ileal, G666  
 Chloride cells, cortisol stimulation of, opercular membrane (tilapia), R857  
 Chloride channel  
 airway epithelial, calcium-dependent activation, phosphorylation and, L410  
 apical membrane  
 acid secretion and, parietal cells, G536  
 airway epithelia, C295  
 conductances, apical membrane vesicles, oxyntic cells, G850  
 double-barreled, collecting duct basolateral membrane, F46  
 small-conductance, anion selectivity and, pancreatic duct cells, C752  
 Chloride channel blockers, acid secretion and, parietal cells, G536  
 p-Chloromercuribenzenesulfate, inhibition, active chloride transport, plasma membrane vesicles, gut (sea hare), R1111  
 Cholera toxin  
 bicarbonate-rich cholera-induced, amiloride effects, liver, G453  
 Cholecystokinin  
 gastrin/CCK family, structure/activity relations (chicken), G882  
 inositol phosphate formation and, pancreatic acini, G655  
 molecular forms of, intestine, G364  
 nerves and, control of pancreatic secretion, G198  
 pancreatic growth and, bile salt-induced, G86  
 receptors: *see* Receptors  
 release, intravenous amino acids and, G173  
 sodium oleate-stimulated secretion and, pancreas, G960  
 Cholecystokinin octapeptide, gallbladder tone, electronic pneumatic barostat, G314  
 Cholecystokinin-releasing factor, luminal, duodenojejenum, G191  
 Cholera toxin  
 secretory capacity and, small intestine, G474  
 secretory diarrhea, small intestinal motor activity and, G420  
 Cholerisis  
 bicarbonate-rich, cholera-induced, amiloride effects, liver, G453  
 glucagon, mechanism of (guinea pig), G736  
 Cholestasis, intravenous amino acid effects, gallbladder emptying and hormone release, G173  
 Cholesterol, membrane, cellular calcium uptake and, H1933  
 Cholestyramine, pancreatic growth induced by, CCK mediation of, G86  
 Choline, lamellar bodies, instillation in alveolar compartment, L238  
 Chorda tympani  
 nerve responses, synergism between monosodium glutamate and 5'-nucleotides, R420  
 taste response recovery, early sodium chloride depletion, R786  
 Choroid plexus, natriuretic peptide binding sites, autoradiography, E246  
 Chromaffin cells, lead-induced secretion, fura-2, C762  
 Chromaffin vesicles, synthesis of chromogranin A, C161  
 Chromogranin A, synthesis, chromaffin vesicles, C161  
 Chylomicrons, fat feeding effects, small intestine, G709  
 Cigarette smoke, eicosanoid release and, airway epithelial cells (bovine), L222  
 Cimaterol, cathepsin activity and, myotubes, E822  
 Circadian rhythm: *see* Rhythms  
 Circadian variations: *see* Rhythms, circadian  
 Circulation: *see also* Blood flow; Microcirculation  
 cerebral  
 nitric oxide and, H1216  
 oxygen and arachidonate effects, newborn (pig), H1230  
 coronary  
 myocardial energy metabolism during hyperemia, H1190  
 $\beta$ -receptor subtypes in, H1575  
 enterohepatic, taurocholate kinetics, G233  
 hyperdynamic  
 bile acid effects, portal hypertension, G21  
 sodium restriction and, G498  
 liver, outflow pressure effects (sheep), R780  
 mesenteric, during vasoconstrictor infusion, H1270  
 pulmonary  
 EDRF role in, at birth, H1921  
 endothelin 1 and, H48

- halothane anesthesia effects, H74  
left atrial pressure and, H93  
response to adrenergic stimulation, anterior third ventricle (duck), R294  
splanchnic, bile acid effects on hyperdynamic circulation, G21
- Citrulline  
arginine synthesis  
nephron, F916  
renal, E437
- Clara cells, arachidonic acid metabolism, regulation of ion transport and, L213
- Clearance, metabolic, endocrine pulse generators, E351
- Clonidine  
activation, L-arginine pathway, coronary arteries, H1433  
regulation of sodium chloride, tracheal epithelial cells, L66
- Clostridium difficile* toxin A, permeability and chloride secretion with, intestinal, G165
- Cobalt, small bowel motility, G226
- <sup>58</sup>Co-EDTA, multiple indicator dilution studies, G32
- Colchicine, glucagon cholerisis and (guinea pig), G736
- Cold  
anestrus induced by, diet and body fat effects (hamster), R1198  
exposure, glucose uptake and, peripheral tissues, R1043  
meals and isoproterenol, thermogenesis after, lateral hypothalamic lesions, E534  
norepinephrine turnover and, brown fat, R90
- Colitis, pseudomembranous, *C. difficile* toxin A and, G165
- Collagen  
extracellular matrix receptors, kidney cortex, F783  
phospholipids and proliferation, glomerular cells, F326  
synthesis, high glucose effects, proximal tubule, F705
- Colon  
apical sodium channels, cholinergic modulation of, colon (turtle), C668  
circular muscle, pacemaker activity in septal structures, G264  
distal  
apical vessels, aldosterone-induced, F65  
hydrogen and bicarbonate flux across, C35  
leukotriene D<sub>4</sub> excitation of, G753  
volume, inferior mesenteric ganglion and (guinea pig), G490  
motor response, eating, G155  
motor response to capsaicin, substance P and CGRP effects, G889  
myocytes, voltage-dependent currents in, ouabain effects, C402  
proximal, endogenous prostanoid effects on sodium-chloride transport (pony), G62  
slow waves in, propagation of, G258  
vasodilation, VIP antagonist and, G253
- Colonic mucosa, gastrin induction of ornithine decarboxylase, tyrosine kinase role in, G626
- Colony-stimulating factor, protooncogene expression and, alveolar macrophages, L144
- Compartmental analysis  
calcium uptake, vascular smooth muscle, R172  
glucose distribution and kinetics, E292
- Complement, activation, postischemic skeletal muscle, H525
- Complementation, cystic fibrosis cells, C1010
- Compliance  
left atrial, H1006  
venous drainage, hindlimb, H1789  
ventricular, naloxone effects, endotoxemia, H504
- Computer-assisted instruction  
videodisc, vs. live laboratory animals, S11  
membrane potential simulation program, S15
- $\omega$ -Conotoxin, autonomic and behavioral responses, awake state, R427
- Converting enzyme, inhibition, renal response to ANF and, experimental heart failure, R84
- Copper  
accumulation, albumin effects, fibroblasts and hepatocytes, G219  
transport, albumin and histidine effects, fibroblasts, G212  
uptake, chloride-dependent, erythrocytes, C570
- Corn oil, preference, sham-feeding, obesity and, R1093
- Coronary artery  
L-arginine pathway, bradykinin, serotonin, and clonidine effects, H1433  
conductance, cholinergic regulation of (swine), H109  
occlusion, microcirculation and, H909  
physiology, wall stretch effects, H1869  
quantitative and autoradiographic analyses,  $\alpha$ -adrenergic and serotonergic receptors, H1343  
spasm, hypercontractility to histamine, H9
- Coronary collaterals  
adaptation, high altitude, H1667  
intramural, functional anatomical site of, H706
- Coronary flow, inosine effects, H759
- Coronary vessels, proximal, dilation, cGMP and, H340
- Cortical bone, responses, 1,25-dihydroxyvitamin D<sub>3</sub> infusion, E715
- Corticosterone  
binding, after stress or dexamethasone, spleen or thymus, E405  
energy expenditure and, refeeding after low calorie intake, E658  
hypothalamic control  
exercise metabolism, R478  
sympathoadrenal activity, R470  
response, feeding, peripubertal feeding, R25  
stress and, brain lactate, R773
- Corticotropin-releasing hormone, preoptic area injection of, sympathetic activity and, R799
- Cortisol  
plasma levels  
feeding effects, preweaning life (baboon), R157  
salt taste, circadian rhythm in, R931  
progesterone interaction, control of renin activity, R350  
stimulation, chloride cells, opercular membrane (tilapia), R857
- Coupling  
excitation-contraction  
during respiratory acidosis (ferret), H843  
myocyte structure and calcium kinetics (hamster), H1533  
sarcoplasmic reticulum calcium content and, myocytes, heart (guinea pig), H1222  
ventricular myocytes, H395  
receptor-effector, myogenic interaction, microvascular smooth muscle, H1126  
stimulus-secretion  
calmodulin and insulin secretion, E856  
CCK and, pancreatic acini, G655  
ethacrynic acid and renin secretion, F539  
pertussis toxin pretreatment effects, peritoneal mast cells, C715
- Creatine kinase  
hypothermic reperfusion, postischemic recovery and, H879  
neutrophils and, acute phase response in exercise, R1214
- Creatinine, paracellular absorption, intestinal, body size relations, G290
- Cremophor, toxicity, cyclosporin A and, renal proximal tubule cells, C897
- CRH: see Corticotropin-releasing hormone
- Cricopharyngeus, determinants of pressure, G245
- Cromakalim, hypoxia effects, pulmonary and mesenteric arteries, H281
- Cryospectrophotometry, microvascular oxyhemoglobin saturations, H1912
- Crypt-villus axis, intestinal, D-glucose transport, diabetes, G571
- CSF: see Cerebrospinal fluid
- Current, short-circuit, flux, basolateral, ouabain-treated skin (frog), R936
- 6-Cyano-7-nitroquinoxaline, excitatory, medial nucleus tractus solitarius, H1307
- Cyclofoxy, kinetics, brain, H1278
- Cycloheximide  
enhancement of endothelial cell injury, L123  
protein synthesis inhibition, myocardial protection by preconditioning and, H1822
- N<sup>6</sup>-Cyclohexyladenosine, vasopressin interaction, inner medullary collecting duct, F679
- Cyclooxygenase  
blockade, muscle afferent response to static contractions and, H745  
dilation, cerebral arterioles, H1171  
inhibition, interleukin 1 $\beta$ -induced growth of mesangial cells, F419  
metabolism, late airway response in asthma and (sheep), L136  
release, acrolein effects, airway epithelial cells (bovine), L222  
reoxygenation, anoxic endothelium, C738
- Cyclooxygenase inhibitor, pulmonary artery response, H1325
- Cyclophosphamide, type IV procollagen mRNA and, pulmonary, L47
- Cyclosporin A, vehicle toxicity and, renal proximal tubule cells, C897
- Cyst(e)ine, metabolism, bathocuproine disulfonate and, hepatocytes, E443
- Cystic fibrosis  
apical membrane chloride channels, airway epithelia, C295

Cystic fibrosis (*continued*)  
 chloride permeability, sweat duct cells, C842  
 duramycin effects, chloride secretion, airway epithelium, C450  
 genetic implementation in, pancreatic cells, C1010  
 Cytidine 5'-diphosphocholine, lamellar bodies, instillation in alveolar compartment, L238  
 Cytochalasin  
 actin filaments, intestinal goblet cells, G991  
 microfilaments, tubular structure and function, F279  
 Cytochrome *aas*, cardiac oxygenation, ischemia and reperfusion, H1477  
 Cytochrome P-450  
 hepatic, chronic hypoxia and, C654  
 metabolites of arachidonic acid, dilation of cerebral arterioles, H1171  
 Cytodifferentiation, adipocyte, sodium-potassium-ATPase and, C968  
 Cytokines  
 following lipopolysaccharides, R126  
 hemorrhage, resuscitation and, R663  
 pulmonary fibrosis and, L159  
 response to, lipocortin effects, R266  
 Cytoprotection, oxygen radicals, lipid binding to gastric mucosa, G681  
 Cytotoxicity, oxidative stress, kidney cells, F338

**D**

DBcAMP: *see* Adenosine monophosphate, cyclic, dibutyl  
 Deamidase, thyrotropin-releasing hormone, ontogeny and distribution of, E787  
 Defibrillation, deterministic model, H1544  
 Deformability, erythrocytes, oscillatory shear flow and, H1071  
 Dehydration  
 drinking behavior, circulating angiotensin II and, R531  
 heat-induced limb vasodilation in, compartmental fluid repletion effects (baboon), R1139  
 salt appetite, angiotensin-converting enzyme inhibitor and, R736  
 Dementia, peptide transport system, opiates, blood-brain barrier, E1  
 Deoxycoformycin, transport, brush-border membrane, ileum, G504  
 Deoxycorticosterone, ANP levels, atrial appendectomy, awake state, R1017  
 Deoxycorticosterone acetate  
 kallikrein release and, kidney, F752  
 -salt hypertension, nifedipine in, F598  
 synergistic actions of, cortical collecting duct, F147  
 Deoxyglucose  
<sup>14</sup>C-labeled, suprachiasmatic nucleus (hamster), R1083  
 entrainment of circadian phase, development and (opossum), E384  
 2-Deoxy-D-glucose, uptake, insulin-like growth factor I and, E561  
 Deoxyribonucleic acid  
 stress ulcer repair, gastric mucosa, G584  
 synthesis  
 mercuric chloride nephrotoxicity, EGF and, F438  
 mitogenic and secretory responses of pancreatic  $\beta$ -cells, C828

Depolarization  
 insulin and isoproterenol effects, cardiomyocytes, H554  
 neutrophil, via chloride efflux, C531  
 Desferrioxamine  
 iron-mediated radical reactions, stunned myocardium, H1901  
 membrane phospholipid breakdown and, ischemic-reperfused heart, H1101  
 Desipramine, norepinephrine clearance and, congestive heart failure, E261  
 Development: *see also* Growth; Maturation  
 basolateral plasma membrane vesicles, sodium-hydrogen exchange, liver, neonate, G334  
 embryonic, platelet-activating factor during pregnancy, H766  
 entrainment in (opossum), E384  
 gastric, newborn, maternal milk PGE<sub>2</sub> relations, G702  
 gastric hydrogen-potassium-ATPase, suckling, G913  
 glucose homeostasis, hypothalamic-pituitary-adrenocortical axis and, E601  
 heart, L-type calcium channels, embryonic heart cells (chick), H639  
 intestinal, electroneutral sodium absorption, L-glutamine-stimulated (piglet), G99  
 oxytocin receptors during, kidney, F872  
 postnatal  
 oxidative enzymes, nephron segments, F895  
 temperature effects on norepinephrine in brown fat, R90  
 pulmonary, ion transport, perinatal period, L30  
 renal, acidification mechanisms, F458  
 sodium chloride depletion during, taste response recovery and, R786  
 thermoregulatory thermogenesis, onset of obesity and, E11  
 transforming growth factor- $\alpha$  in, E256  
 transporter, monosaccharide and amino acid, intestine, G544  
 type II cells, fetus and neonate, L359  
 vascular, perinatal aortic growth (lamb), H1247  
 Dexamethasone  
 adrenal steroid receptor binding after, spleen and thymus, E405  
 glucose cycling and, healthy subjects, E626  
 hormonally regulated proteins and, fetal lung, L283  
 kallikrein release and, kidney, F752  
 Dextran  
 manipulation of clot structure, red cells, H1527  
 neutral vs. anionic, permeability of, brain microvascular endothelium, H162  
 Diabetes  
 glucose metabolism  
 glycogenolysis and, amylin effects, E457  
 obesity, hepatocytes, E389  
 hyperresponsiveness before,  $\beta$ -cells (monkey), R612  
 insulin-dependent, lipolysis and, E542  
 ketoacidosis, osmoregulation of vasopressin in, E723  
 neuropathy, glomerular response to hyperglycemia, F545

organic osmotic effectors, aldose reductase inhibition of, renal medulla, F733  
 permeability at blood-retinal barrier, aldose reductase inhibition of, R601  
 starvation, mechanisms of, E770  
 streptozotocin-induced, glucose transport and, intestine, G571  
 sustained, testicular dysfunction and fertility with, E881  
 thyroid hormone, adaptation to glucocorticoids, E699  
 type 1, insulin effects on leucine and  $\alpha$ -ketoisocaproate metabolism, E96  
 Diabetes mellitus  
 adrenergic denervation with, H55  
 streptozotocin treatment, awake state, substance P and somatostatin effects, R405  
 Diacylglycerol, phospholipids and proliferation, glomerular cells, F326  
 Diacylglycerol kinase, inhibition, sodium-coupled uptakes, proximal tubules, F816  
 Diaphragm  
 ammonia or lactate production, high-intensity exercise, H1185  
 ferrylmyoglobin reduction in, C995  
 myosin isoforms in, neonate, L116  
 Diarrhea  
 aging effects, small intestine, G474  
 erythromycin and, G355  
 secretory, motor activity in small intestine and, G420  
 Diastole  
 passive electric property relations and, left ventricular, H457  
 regional finite strains, left ventricle, H1409  
 Diazepam, delayed-type hypersensitivity, fever effects on expression of, R1  
 Diazoxide, hypotension induced by, thirst relations, R362  
 Dichloroacetate, stimulation, glucose oxidation, ischemic heart, H1079  
 Diet: *see* Feeding  
 Digestion, migrating motor complex (turkey), G329  
 Dihydroergocryptine, <sup>3</sup>H-labeled,  $\alpha$ -adrenergic regulation of secretion, L198  
 Dihydroouabain, sodium-potassium pump and sodium, cardiac myocytes, H488  
 Dihydropyridine  
 calcium channels sensitive to, airway smooth muscle cells, L468  
 cell volume regulation sensitive to, proximal tubule, F950  
 potassium transport and, erythrocytes, C332  
 1,25-Dihydroxyvitamin D<sub>3</sub>: *see* Vitamin D<sub>3</sub>  
 4,4'-Diisothiocyanostilbene-2,2'-disulfonic acid  
 hydrogen and bicarbonate flux and, distal colon, C35  
 pH control, vascular smooth muscle, C134  
 Dioctanoylglycerol, sodium transport and, urinary bladder (frog), F425  
 Dipeptides, clearance, mechanism of, hindquarters, E463  
 Diphenylamine-2-carboxylate, acid secretion and, parietal cells, G536  
 Dipyradomole  
 adenosine regulation, cerebral blood flow, H1703



# SUBJECT INDEX TO VOLUME 259

- capillary adenosine transport, heart (guinea pig, rat), H772
- interstitial adenosine and, heart (guinea pig), H1471
- transport, brush-border membrane, ileum, G504
- Diuresis**
- control,  $\alpha_2$ -adrenoceptors and, F1
- dopamine-2 mechanisms and, F793
- micturition and, renal pelvic pressure, R637
- pressure, neurogenic control of, awake state, F466
- renal and cardiovascular function, modification of, men, F832
- DOCA: see** Deoxycorticosterone acetate
- Docosahexaenoic acid**, dietary n-3, myocardial ischemia and reperfusion, H1518
- Dopamine**
- anorectic responses, amino acid imbalance, R627
- brain, changes during anoxia (turtle), R376
- content, platelet, sympathoadrenal activity and, E141
- fluids and, septic shock, model, H1440
- inhibition of sodium-hydrogen exchanger, renal brush-border membrane vesicles, F297
- receptor: *see* Receptors
- Dopamine-2**, mechanisms, renal function, F793
- Dopamine  $\beta$ -hydroxylase**, synthesis, chromaffin vesicles, C161
- Dose-response relations**, defibrillation model, H1544
- Doubly labeled water technique**, energy expenditure, burned children, E576
- Drinking behavior**
- angiotensin and salt appetite, R729
- angiotensin-converting enzyme inhibitor and, R736
- cerebral sodium concentration and, R741
- circulating angiotensin II and, R531
- light-dark cycle modulation of, homeostatic challenges, R1035
- sham, intraduodenal infusion of fat and satiety, R110
- thirst, diazoxide-induced hypotension relations, R362
- Duodenojejunum**, vascularly perfused, CCK-releasing factors in, G191
- Duodenum**
- amino acid infusion, solid gastric emptying and (pig), G676
- calcium and magnesium absorption, comparison, G720
- cross-sectional area, interdigestive migrating motility complex, G26
- gastric emptying, inhibition by acids, G1025
- infusion, motor pattern of small intestine and, G78
- Duramycin**, chloride secretion and, airway epithelium, C450
- Dynorphin**, opiate transport and, blood-brain barrier, E1
- E**
- Echinocytes**, potassium-chloride cotransport, swelling-activated, C960
- Ectotherm**, temperature and pH effects, muscle, R204
- Edema**
- cerebral, hypertension and hemodilution effects, H211
- outflow pressure effects, liver lymph flow (sheep), R780
- pulmonary
- acid aspiration, phalloidin and, L378
- antibody against integrin and, L315
- hypertension-induced, oxygen radical effects, H497
- hypoxia and reoxygenation effects, H518
- EDRF: see** Endothelium-derived relaxing factor
- EGF: see** Epidermal growth factor
- Eicosanoids**
- alveolar type II cell differentiation, arachidonate metabolism and, L73
- biosynthesis, phorbol esters, kidney cells, F698
- excretion, urine, bladder contribution to, F859
- growth and cysteinyl leukotrienes, airway epithelial cells, L255
- hypoxic pulmonary vasoconstriction and, H751
- metabolism, clara cells, L213
- release, acrolein effects, airway epithelial cells (bovine), L222
- Eicosapentaenoic acid**, dietary n-3, myocardial ischemia and reperfusion, H1518
- Elastance**, afterload effects, left ventricular function, closed chest, H619
- Elastase**
- endothelial cell injury, neutrophil mediated, H925
- leukocyte infiltration and, reperfusion-induced, H390
- lung injury, after short-term hyperoxia, L451
- neutrophil-mediated permeability, H1288
- Elastic filament**, endosarcomeric, muscle fiber, C144
- Elastin**, synthesis, lung, L13
- Electrical stimulation**, cardiac response to, atrial and ventricular ganglionated plexi, H1365
- Electroencephalography**
- forebrain-sympathetic nerve relations, R572
- interleukin  $1\beta$  somnogenic activity, interleukin  $1\alpha$ , R439
- Electrolytes**
- absorption, meal-stimulated, jejunum, G402
- balance, aldosterone in angiotensin hypertension, R102
- transport
- chemotactic peptide effects, intestine, G947
- ileal brush-border membrane, G666
- jejunal, hypertonic solution effects, R1289
- renal brush-border membrane, F867
- Electromyography**
- diaphragmatic, apneas and arrhythmias, R282
- upper esophageal sphincter, determinants of pressure, G245
- Electronic pneumatic barostat**, measurement of tone changes, gallbladder, G314
- Electrophysiological activity**, atrial cell, mathematical model (bullfrog), H370
- Embryo**, heart cells, calcium channels in (chick), H639
- Emotion**, cardiovascular response to, neurons in control of, R943
- Emphysema**, pulmonary, elastin synthesis and, L13
- Enalapril**
- DOCA-salt hypertension and, glomerular injury, F598
- response to ANF, heart failure, R84
- Endocardial endothelium**, vasopressin actions, H1148
- Endocardium**, ANF release and, H983
- Endocrine gland**, pulse generators, operating behavior of, E351
- Endocytosis**
- asialoglycoproteins, developing liver, G639
- water channels, kidney, C920
- Endolymphatic sac**, direct current potential, catecholamine depression of (guinea pig), R921
- Endorphin**, opiate transport and, blood-brain barrier, E1
- Endothelial cells**
- adenine nucleotide depletion, xanthine oxidase and, C883
- coculture with cells of vascular media, endothelin release and, H1928
- denudation, fatty acid metabolism and, aorta, H442
- injury, anoxia-reoxygenation-induced, neutrophil-mediated, H925
- sodium-hydrogen exchange, osmotic activation of, C640
- tumor necrosis factor-induced injury, enhancement by cycloheximide, L123
- Endothelin**
- circulatory effects, newborn (pig), H1613
- experimental congestive heart failure, anesthetized dog, F312
- microvascular effects
- direct cortical, H1688
- renal, F217
- release, coculture of endothelial cells with cells of vascular media, H1928
- renal actions, prostacyclin interaction, F645
- vasoconstrictor effects of, renal, nifedipine prevention, F304
- vasodilation induced by, H1835
- Endothelin 1**, pulmonary vasodilation and, H48
- Endothelium**, reactive dilation and, skeletal muscle arterioles, H1313
- Endothelium-dependent relaxation**, filarial parasite products, H648
- Endothelium-derived relaxing factor**
- L-arginine, brain microvessel tone and, H1396
- arterioles, skeletal muscle, H1313
- basilar artery tone and, H1216
- cGMP and, epicardial coronary dilation and, H340
- endothelial dysfunction, cardiac ischemia, H1660
- modulation of ANF release, H983
- pressor effects of, awake state, virgin and gravid rats, F293
- prostanoids and, vasodilation, H1835
- pulmonary circulation and, at birth, H1921
- vascular resistance and, renal, F9

- Endotoxemia**  
antibiotics versus cardiovascular support, model, H1440  
*E. coli*, left ventricular dysfunction in, H504  
loss of vascular responsiveness, L-arginine pathway effects, H1038  
mesenteric occlusion and, gut intramural pH during (pig), G519
- Endotoxigenesis, mitochondrial function in, hepatic, E498**
- Endotoxin**  
activation, guanylate cyclase, vascular smooth muscle, R38  
acute phase response to,  $\alpha$ -melanocyte-stimulating hormone effects, R768  
interleukin 1 and TNF- $\alpha$ , induction of plasma inhibitors of, R993  
interleukin 1 $\beta$  and TNF, fever, R724  
superoxide anion generation, perfused liver, G907
- Endurance: see Exercise**
- Energy**  
balance  
candidate genes in regulation of (monkey), R1148  
paraventricular nucleus and, exercise, R579  
dependence, sodium-calcium exchange, vascular smooth muscle cells, C302  
expenditure  
aging effects, E233  
basal metabolic rates and (bird), R333  
doubly labeled water technique, burned children, E576  
nutrient intakes and, overfed young men, R461  
pregnancy, calorimetric study of (hamster), R807  
refeeding after low calorie intake, corticosterone effects, E658  
weight cycling effects on dietary obesity, R1096
- metabolism**  
cerebral blood flow and, during stress, H269  
myocardial, reactive hyperemia, H1190  
obesity-prone and obesity-resistant rats, R1103  
oxidative enzyme development and, nephron segments, F895  
spermatic, metabolism, glycolytic component of, C660  
thyroid hormone and epinephrine interaction, E305
- Enflurane**  
anesthesia, negative inotropy, ventricular myocardium (ferret), H827  
anesthetic, effects on hearts, H1118
- Enkephalin**  
opiate transport and, blood-brain barrier, E1  
somatostatin secretion and, gastric, G922
- Enteric nervous system**  
cation current, hyperpolarization and (guinea pig), G966  
control, intestinal motor activity, G593  
neural regulation, pyloric smooth muscle, G125  
transport, interdigestive duodenal motility and, G348
- Enterocytes**  
ATP-depleted, glycyl-L-sarcosine transport and (chick), G775
- D-glucose transport, streptozotocin diabetes, intestine, G571**
- Entrainment, circadian phase, development and (opossum), E384**
- Enzymes: see also specific enzyme activity**  
thrombin-mediated increase in endothelial permeability and, L270  
urokinase receptor localization of, macrophages, L432  
muscle, neutrophils and, acute phase response in exercise, R1214
- Eosinophil MBP, epithelium-dependent contraction and, airway smooth muscle, L294**
- Epicardium, deformation, asynchronous activation and, H300**
- Epidermal growth factor**  
mercuric chloride nephrotoxicity, renal repair in, F438  
multiple forms of, identification in milk, G1056  
PTH-related protein and, phosphate transport, renal cells, F929  
segmental distribution, nephron, F553  
sources, plasma and serum, R545
- Epinephrine**  
 $\beta$ -adrenoceptors and, smooth muscle cells, stomach (guinea pig), G436  
brain, changes during anoxia (turtle), R376  
cerebral blood flow and energy metabolism, during stress, H269  
content, platelet, sympathoadrenal activity and, E141  
depression, endolymphatic sac direct current potential (guinea pig), R921  
graded central hypovolemia, hypoxemia and, H1197  
hepatic nerves, exercise and, E195  
hypothalamic control  
exercise metabolism, R478  
sympathoadrenal activity, R470  
neurotransmitter, skeletal muscle, H1718  
regulation of sodium chloride, tracheal epithelial cells, L66  
response, hypoglycemia, enlarged adrenal medulla and, R998  
stress and, brain lactate, R773  
thyroid hormone interaction and, E305
- Epithelial cells**  
pulmonary  
ionic transport, perinatal period, L30  
neonate, L415  
salt-secreting, agonist-regulated chloride and potassium conductance, C358  
tight junction formation, calcium role in, C978  
tracheal, calcium and  $\alpha$ -adrenergic regulation of sodium chloride, L66
- Epithelium, anion-transporting, fluorescent stilbene binding proteins in, C439**
- Epithelium-derived relaxing factor, mechanical removal of airway epithelium, mast cells and (ferret), L372**
- Epoxyeicosatrienoic acid, dilation, cerebral arterioles, H1171**
- Epoxygenase, dilation, cerebral arterioles, H1171**
- Ergothioneine, ferrylmyoglobin reduction, diaphragm, C995**
- Erythrocytes**  
calcium-activated potassium transport, nifedipine effects, C332
- cAMP formation and swelling in, oxygen tension effects (carp), C723**
- cation permeability, mechanical stress and, C746**
- chloride, foreign anion substitution for, C819**
- copper uptake, chloride-dependent, C570**
- deformation response, oscillatory shear flow, H1071**
- distribution, left ventricular myocardia, H403**
- galactose transport, fasting and, E804**
- maturation, decrease in sodium-potassium-ATPase and (sheep), C241**
- potassium-chloride cotransport, swelling-activated, C960**
- velocity**  
flow-induced dilation, H1063  
hemoconcentration effects, striated muscle, H1694  
washout, gel pore size and red cell flexibility effects, H1527
- Erythroid cells, transformed, 15-lipoxygenase product of arachidonate, C849**
- Erythromycin, gastrointestinal motor effects and, G355**
- Erythropoietin**  
preglomerular oxygen diffusion shunt, renal cortex, F910  
secretion, renal carcinoma cells, response to ANF, C427
- Esophageal sphincter, lower, gastric distension and, G380**
- Esophagogastric junction, gastric distension effects, G380**
- Esophagus**  
distension, cerebral potentials evoked by, G955  
lower sphincter, cAMP alterations, VIP effects, G239  
upper sphincter, determinants of pressure, G245
- Estrous cycle, cold-induced anestrus, diet and body fat effects (hamster), R1198**
- Ethacrynic acid, stimulation, renin secretion, F539**
- Ethanol, leukocyte-endothelial cell interactions, mesenteric venules, G578**
- Ethylenediaminetetraacetic acid, coronary microvascular response and, during occlusion, H909**
- Euglycemia, glomerular response to, diabetic neuropathy, F545**
- Euthyroid, thermogenic effects, epinephrine and insulin with, E305**
- Exercise**  
acute phase response in, neutrophils and muscle enzymes, R1214  
endurance, thermal dependence (reptile, amphibian), R253  
endurance training  
aging and, metabolic rate in healthy men, E66  
glucose transport capacity and, muscle, E778  
energy balance, paraventricular nucleus and, R579  
enhanced glucose transport after, muscle, E685  
hand, forearm ischemia and, R1156  
high-intensity short-term, ammonia or lactate production by diaphragm, H1185  
maximal oxygen consumption, quantitative genetics (snake), R986



metabolism, paraventricular hypothalamic adrenoceptors and, R478  
 muscular contraction, discharge patterns, ventrolateral medullary neurons, R606  
 physical activity, mitochondrial ATP production, muscle, E204  
 physical exertion, sympathoadrenal activity, platelet catecholamine content and, E141  
 prolonged, tricarboxylic acid, muscle, C834  
 recovery  
   ammonia metabolism during, E170  
   muscle protein synthesis, E470  
 running  
   deactivation rate and shortening velocity in contractile frequency, R223  
   voluntary, insulin effects on carbohydrate and protein metabolism, E706  
 static contractions, muscle afferent response to, cyclooxygenase blockade and, H745  
 stress and, hippocampus and striatum extracellular lactate, R773  
 swimming, deactivation rate and shortening velocity in contractile frequency, R223  
 swim training, adrenal medulla and, R998  
 sympathoadrenal activity in, hypothalamic adrenoceptor mediation of, R470  
 training  
   calcium release and, coronary smooth muscle sarcoplasmic reticulum (pig), H643  
   insulin secretory capacity and, young men, E155  
   work, muscular, hepatic glucose production during, E195  
**Exocytosis**  
   amylase release, pancreatic acini, G157  
   secretory granule membrane, parotid gland, C413  
**Extensor digitorum longus muscle**  
   myosin isoforms in, neonate, L116  
   myosin phosphorylation, temperature effects, C432  
**Extracellular matrix, receptors: see Receptors**

## F

**Fasting**  
   duration, plasma ketones and, neonate (seal), R1086  
   feeding and, hepatic glycogen repletion, E335  
   lipid accumulation, sodium transport and, gastric antrum, G998  
   oral galactose metabolism, hepatic uptake of, E804  
   postprandial bile flow and, hepatic, awake state (opossum), G745  
   prolonged,  $\alpha_2$ -responsiveness in adipose tissue and (hamster), E80  
   protein metabolism and, muscle, insulin response and, E477  
   refeeding after, adipocyte lactate production, E865  
   starvation diabetes, mechanisms of, E770  
   *T. spiralis* effects, intestinal motor activity, G693

**Fat**  
   body  
     diet and, effects on cold-induced anestrus (hamster), R1198  
     distribution, weight cycling and, R1096  
     spontaneous obesity in aging males, model, R1117  
   cholesterolemic effects, small intestine, G386  
   feeding, chylomicrons in small intestine and, G709  
   ingestion, endurance-trained and untrained young men, E155  
   intraduodenal infusion, satiety and, R110  
   oxidation, predictor of weight gain, E650  
   preference, sham-feeding, obesity and, R1093  
**Fat cells: see Adipocytes**  
**Fatty acids**  
   bile salt effects, liver, G205  
   dietary, forearm vascular resistance and, R1164  
   dietary n-3, myocardial ischemia and reperfusion, H1518  
   diffusion, acidic mucin layer effects, G671  
   essential, deficiency, arachidonic and linoleic acid absorption and, G116  
   free  
     exercise metabolism, R478  
     glycolysis and, impaired oxidative capacity, E451  
     lipolysis, hyperglycemia effects, E542  
     maternal hypoglycemia, fetal response to catecholamines and, R1126  
     oxidation, insulin effects, E736  
   metabolism, endothelial cell denudation and, aorta, H442  
   oxidation  
     dichloroacetate stimulation of, ischemic heart, H1079  
     exercise-induced decline in different muscle types, E266  
     mitochondrial, liver, endotoxins, E498  
     substrate preference, early myocardial reperfusion, H317  
   oxidative enzyme development, nephron segments, F895  
   saturated, small intestine, G386  
   synthesis  
     putative lipostatic factor and, R45  
     TNF, diet effects, E177  
     uptake, alveolar type II cells, L206  
   2-FDG: see 2-[<sup>18</sup>F]Fluoro-2-deoxy-D-glucose  
**Feedback**  
   intestinal, length-dependent, G1025  
   tubuloglomerular  
     ANF modulation of, kidney, R97  
     interactions, adjacent nephrons, F60  
     interactions in autoregulation, renal, model, F715  
     restoration by angiotensin II, volume expansion and, F565  
     spontaneous hypertension, F529  
     systemic amino acid administration and, single nephron, F739  
**Feeding**  
   appetite, candidate genes in regulation of (monkey), R1148  
   behavior  
     central injection of GRF, R651  
     neuropeptide and peptide effects, fourth ventricular, R317

**diet**  
   capsaicin and brown fat atrophy, R324  
   cold-induced anestrus (hamster), R1198  
   hepatic triglyceride production and, E177  
   maternal, insulin secretion and, islets, E568  
   monitoring of bone resorption, R679  
   oxidative enzyme development and, nephron segments, F895  
   salt intake, calcium deprivation effects, R411  
**dietary glutathione**  
   bioavailability of, G524  
   disposition in gastrointestinal tract, G530  
**dietary limiting amino acid effects, prepyriform cortex, R709, R716**  
**eating**  
   colonic motor response to, G155  
   ventromedial hypothalamic lesions and gastric emptying, R658  
**fat**  
   acute and chronic, mRNA and, G93  
   chylomicrons in small intestine and, G709  
   food deprivation, glycogen metabolism and, liver, E692  
   food intake depression, serotonin receptor antagonists and, R627  
   food restriction, susceptibility to dietary obesity and, R1096  
   glucoprivation, gastric motility and pituitary oxytocin secretion in, R447  
   high-fat diet, vagal stimulation in obesity, R842  
   high-fat-sucrose diet, insulin receptor kinase activation and, E111  
   isoproterenol and cold, thermogenesis after, lateral hypothalamic lesions, E534  
   lipid accumulation, sodium transport and, gastric antrum, G998  
**meals**  
   intraduodenal, pancreatic secretion and, G198  
   water and electrolyte absorption, jejunum, G402  
   overfeeding, nutrient intakes and energy expenditure, young men, R461  
   parenteral, nitrogen sparing of 2-ketoisocaproate, E633  
   plasma cortisol levels, preweaning life (baboon), R157  
   protein diets, amino acid transport and, liver, E614  
   protein-induced contraction, jejunal smooth muscle, G6  
   putative lipostatic factor and, R45  
   radiolabeled test meal, visualization of gastric emptying, G1063  
   real or sham, insulin and flavor aversions, R823  
   refeeding after low calorie intake, corticosterone effects on energy expenditure, E658  
**sham**  
   behavioral adjustments, R1228  
   corn oil preference and obesity, R1093  
   intraduodenal infusion of fat and satiety, R110  
   short-term hormonal responses to, peripubertal female, R25  
   sodium appetite, cerebral sodium concentration and, R741

# SUBJECT INDEX TO VOLUME 259

- Feeding (*continued*)  
 specific hunger, salt, angiotensin and, R729  
 ventromedial hypothalamic obesity syndrome, analysis of, R829
- Ferricytochrome c, superoxide anion generation, liver, G907
- Ferrylmyoglobin, reduction, diaphragm, C995
- Fertility, testicular dysfunction and, sustained hyperglycemia effects, E881
- Fetus: *see also* Lactation; Placenta; Pregnancy  
 catecholamines, response to maternal hypoglycemia, R1126  
 deamination and decarboxylation, leucine, E492  
 development, transforming growth factor- $\alpha$  in, E256  
 endocrine responses, prolonged hypoxemia (sheep), R703  
 glucose utilization, hypoinsulinemia and hyperglycemia in, E506  
 hormonally regulated proteins, lung, L283  
 intramembranous pathway, filtration coefficient and (sheep), R1281  
 leukotriene C<sub>4</sub> effects (sheep), E851  
 lung liquid secretion and absorption, perinatal period, L30  
 lung maturation, regulation of, L337  
 nutrition, placental anionic amino acid transport, C47  
 pulmonary circulation, EDRF role in, at birth, H1921  
 rapid hemorrhage, restoration of blood volume after, H567  
 regional type II cell development, ultrastructural analysis, L359  
 renal sympathetic nerves, volume expansion effects (sheep), R1050  
 thyrotropin-releasing hormone degrading enzymes, ontogeny and distribution of, E787  
 uterine and umbilical response, angiotensin II and norepinephrine (sheep), H197
- Fever  
 brain, vasopressin and oxytocin responses, R1056  
 inhibition, delayed-type hypersensitivity, R1  
 interleukin 1 and TNF- $\alpha$  inhibitors, induction of, R993  
 lipocortin effects, response to cytokines, R266  
 lipopolysaccharide, interleukin 1 $\beta$  and TNF role in, R724
- 2-[<sup>18</sup>F]Fluoro-2-deoxy-D-glucose, analysis, myocardial glucose metabolism, H1022
- Fibrillation, atrial, ventricular response during, H1015
- Fibrin, manipulation of clot structure, red cells, H1527
- Fibrinogen, heme-octapeptide-labeled, platelet interactions with, electron microscopy, C611
- Fibroblasts  
 copper accumulation, albumin effects, G219  
 copper transport in, albumin and histidine effects, G212  
 pulmonary, mitogens for type II cells derived from, L247  
 pulmonary fibrosis and, L159
- Fibronectin, extracellular matrix receptors, kidney cortex, F783
- Filtration  
 capillaries, ANP effects, forearm, H258  
 glomerular  
 ANF effects on tubuloglomerular feedback, R97  
 response to graded hemorrhage, awake state (pig), R119
- Fish oil, dietary n-3, myocardial ischemia and reperfusion, H1518
- Flow  
 capillary cell, spatial heterogeneity in microvascular function, H124  
 coronary, constant, interstitial adenosine and (guinea pig), H1471  
 dilation induced by, coronary microvessels, H1063  
 oscillatory shear, erythrocytes, H1071  
 retrograde, intramural collateral site, H706
- Flowmetry  
 electromagnetic, aortic blood flow measurement, H448  
 laser-Doppler  
 cerebral microvasculature, H1688  
 endothelin-induced vasodilation, H1835  
 muscle blood flow during hemorrhage, H860  
 pulsed Doppler, awake state, responses to hypotension in, G48
- Fluid  
 allantoic, endocrine and fluid-balance responses to loss (sheep), R745  
 amniotic  
 endocrine and fluid-balance responses to loss (sheep), R745  
 filtration coefficient, fetus (sheep), R1281  
 balance, aldosterone in angiotensin hypertension, R102  
 cerebrospinal: *see* Cerebrospinal fluid dynamics, rapid hemorrhage and, fetus, H567  
 excretion, after cardiac denervation, R70  
 interstitial, formation, ANF effects (pig), H1595  
 transcappillary, angiotensin II hypertension and, R1205  
 transport, interdigestive duodenal motility and, G348  
 volume, extracellular, hypoproteinemia, H1317
- Fluorescence  
 ADH modulation, lipid order, MDCK cells, F95  
 chloride-sensitive indicators, development of, C375
- Fluorescent analogue, hydrin 1, E524
- Follicle cells, potassium current, oocyte (frog), C775, C784, C792
- Food intake: *see* Feeding
- Force-velocity relations, end-systolic relation comparison, left ventricular function and, H1419
- Forebrain, rhythm, sympathetic nerve relations, R572
- Forskolin  
 apical membrane sodium conductance and, cortical collecting duct, F823  
 bicarbonate current induced by, apical membrane, corneal epithelium (frog), C215  
 potassium efflux, salivary gland, C904
- response to, substance P effects, parietal cells, G646  
 VIP effects, myocardial, H1559
- Fructose, transport, transporter development, intestine, G544
- Fructose 2,6-bisphosphate  
 exercise-induced decline, different muscle types, E266  
 glycolysis and, impaired oxidative capacity, E451
- Fundus, developing, gene expression in, G108
- Fura-2  
 calcium waves, myocytes, H940  
 calibration, ventricular myocytes, H973  
 single cardiomyocytes, high-speed digital imaging, H230  
 spatial dynamics, calcium, vascular smooth muscle cells, C675  
 substance P contractile responses and, ileal smooth muscle (guinea pig), C150
- Furosemide  
 endogenous, sodium-chloride transport and, proximal colon (pony), G62  
 ethacrynic acid, renin secretion and, F539  
 fluorescent protein binding proteins, anion-transporting epithelia, C439  
 potassium fluxes dependent on, ventricular myocytes, H962  
 sodium chloride transport and, inner medullary collecting duct, F258  
 water transport, descending vasa recta, F688
- ## G
- Gadolinium, blockage, calcium currents, pituitary cells, C515
- Galactose, oral, uptake, liver, fasting effects, E804
- Gallbladder  
 contraction, substance K stimulation, model, G838  
 emptying, intravenous amino acids and, G173  
 epithelium, potassium channels, blocker effects, C56  
 gastrin/CCK family, structure/activity relations (chicken), G882  
 muscle cells, CCK and gastric receptor effects, G184  
 smooth muscle contraction, intracellular calcium and, G1  
 tone, changes measured by electronic pneumatic barostat, G314
- Ganglion, transmission, ACh, presynaptic regulation of, R288
- Ganglionated plexi, atrial and ventricular, cardiac response to electrical stimulation, H1365
- Gas  
 exchange, metabolic rate and bicarbonate kinetics, R163  
 inert, transport, myocardium, H167
- Gastric acid  
 developing fundus, gene expression in, G108  
 output, basal and pentagastrin stimulated (horse), R1259  
 secretion  
 amino acid infusion and (pig), G676  
 basal and pentagastrin stimulated (horse), R1259

# SUBJECT INDEX TO VOLUME 259

- capsaicin-sensitive vagal afferent fibers, G1037
- chloride channel blocker effects, parietal cells, G536
- impaired, mast cell deficiency and, G41
- newborn, maternal milk PGE<sub>2</sub> relations, G702
- ontogeny, suckling, G913
- RX 77368 stimulation of, G599
- structure/activity relations (chicken), G882
- TRH analogue and bicuculline effects, G321
- Gastric antrum
  - gastrin release from, modulation by adenosine, G556
  - sodium transport, lipid accumulation and, feeding effects, G998
- Gastric distension, response to, lower esophageal sphincter, G380
- Gastric emptying
  - excitatory and inhibitory neural regulation, pyloric smooth muscle, G125
  - inhibition, sodium oleate, time of exposure and, G1031
  - intestinal feedback, length-dependent, G1025
  - measurements of, R1090
  - real or sham feeding, insulin and flavor aversions, R823
  - solid, duodenal amino acid infusion and (pig), G676
  - starvation diabetes, mechanisms of, E770
  - ventromedial hypothalamic lesions and, R658
  - visualization, radionuclide technique, G1063
- Gastric mucosa
  - blood flow: *see* Blood flow
  - developing, gene expression in, G108
  - gastrin release from, modulation by adenosine, G556
  - oxynticopeptic cell, basolateral acidification (frog), G564
  - stress ulcers, luminal polyamines in repair of, G584
- Gastrin
  - induction of ornithine decarboxylase, tyrosine kinase effects, colonic mucosa, G626
  - release, G-cells, modulation by adenosine, G556
  - structure/activity relations (chicken), G882
- Gastrin-releasing peptide, pepsinogen release and, chief cells (guinea pig), G760
- Gastrocnemius muscle, fibers, enzymatic plasticity of, chronic spine, C507
- Gastroesophageal reflux, response to gastric distension, G380
- Gastrointestinal infection, fasted state, motor activity and, G693
- Gastrointestinal tract
  - cation current, activated by hyperpolarization (guinea pig), G966
  - dietary glutathione in, G530
- G-cells, gastrin release from, modulation by adenosine, G556
- Gel electrophoresis, hormonally regulated proteins, fetal lung, L283
- Gene expression
  - hydrogen-potassium-ATPase and carbonic anhydrase II, developing fundus, G108
  - regenerating and acute-phase liver, G340
  - strategies for analysis, L185
  - temperature acclimation and (fish), R237
- Gene regulation, lung maturation and, fetus, L337
- Genetics, quantitative, maximal oxygen consumption (snake), R986
- Gentamicin, cardiovascular support versus, septic shock, model, H1440
- GH: *see* Growth hormone
- Glibenclamide, hypoxia effects, pulmonary and mesenteric arteries, H281
- Glomerular cells, phospholipid turnover, extracellular matrix effects, F326
- Glomerulonephritis, leukotriene stimulation, neutrophil adhesion, mesangial cells, F809
- Glomerulotubular balance, angiotensin II role in, F72
- Glucagon
  - amino acid load disposal and, E225
  - choleresis, mechanism of (guinea pig), G736
  - hepatic nerves, exercise and, E195
  - leucine oxidation induced by, bradykinin effects, E239
- Glucocorticoids
  - glucose cycling and, healthy subjects, E626
  - lipocortin effects, response to cytokines, R266
  - myofibrillar proteolysis adaptation to, insulin- and thyroid hormone-independent, E699
  - receptors: *see* Receptors
  - regulation of surfactant protein A mRNA, fetal lung, L488
  - stimulation, sodium-potassium transport and, collecting duct cells, F672
- Glucokinase, measurement, dexamethasone and, healthy subjects, E626
- Gluconeogenesis
  - adaptation to acidosis, renal, R277
  - alanine and lactate, liver and skeletal muscle in, E677
  - glucose transporters, kidney, C286
  - vasoactive peptides and phenylephrine effects, hepatocytes (teleost), E644
- Gluconeogenic precursors, fasted-refed transition, skeletal muscle, E513
- Glucoprivation, gastric motility, pituitary oxytocin secretion and, R447
- Glucoregulation, noncompartmental and compartmental analysis, E292
- Glucose
  - absorption, proximal straight tubules, F580
  - blood, exercise-induced decline in different muscle types, E266
  - blood flow and, transplanted islets, E52
  - concentration, luminal, intestine, G822
  - cycling, dexamethasone effects, healthy subjects, E626
  - disposal, endurance-trained and untrained young men, E155
  - distribution and kinetics, model, E292
  - enhanced muscle glucose transport and, after exercise, E685
  - high, growth and collagen synthesis, proximal tubule, F705
  - homeostasis, during development, E601
  - ileal infusion, motor pattern of small intestine and, G78
  - lactate formation from, E397
  - metabolic differences dependent on, renal proximal tubules, F164
- metabolism
  - adipocyte, refeeding after fasting, E865
  - amylin effects, E457
  - in obesity, hepatocytes, E389
  - insulin-like growth factor I effects, E561
  - myocardial, 2-FDG and, H1022
  - proliferation and, proximal tubules, C455
- nonmetabolizable analogues, expression, LLC-PK<sub>1</sub> cells, C647
- oxidation, dichloroacetate stimulation of, ischemic heart, H1079
- paracellular absorption, intestinal, body size relations, G290
- production
  - hepatic, muscular work effects, E195
  - hepatic, norepinephrine infusion effects, E210
- recycling, isotopomer patterns in, E757
- repletion, fed and fasted humans, E335
- sodium-coupled transport, urinary bladder (crustacean), R147
- sodium-dependent cotransport, LLC-PK<sub>1</sub> cells, C647
- tolerance,  $\beta$ -cells, before non-insulin-dependent diabetes (monkey), R612
- transport
  - enhanced, muscle, after exercise, E685
  - transporter development, intestine, G544
- transport capacity, endurance training effects, skeletal muscle, E778
- transporter
  - differential localization, kidney, C286
  - liver, C279
  - transporter content, muscle fiber types and, E593
- uptake
  - cold effects, peripheral tissues, R1043
  - insulin effects, voluntary running, E706
- utilization
  - brain, chronic vs. acute hypoglycemia, E729
  - cerebral dysfunction after portacaval shunting, E104
  - fetal, hypoinsulinemia and hyperglycemia, E506
- D-Glucose, transport, intestinal, streptozotocin diabetes, G571
- Glucose-6-phosphatase, measurement, dexamethasone and, healthy subjects, E626
- Glucose tolerance test, starvation diabetes, E770
- Glutamate
  - activation, intrathoracic ganglionic neurons, H1108
  - brain, changes during anoxia (turtle), R376
  - pressor response, stimulation of nucleus ambiguus, R955
- L-Glutamate, microinjection, intermedialateral nucleus, R357
- Glutamate dehydrogenase
  - activity, microdissected nephron segments, F53
  - mitochondrial ATP production, microsamples of muscle, E204
  - prediction of oxygenation state, skeletal muscle, C26
- Glutaminase, activity, phosphate-dependent, cortical and medullary tubules, F961

# SUBJECT INDEX TO VOLUME 259

- Glutamine  
ammoniogenesis, proximal tubular, F402  
cerebral blood flow, during hyperammonemia, H34  
protein metabolism, after injury with turpentine, model, E763  
transport  
characteristics of, G327  
denervated skeletal muscle, E148  
mitochondrial, acute pH change effects, F863  
sarcolemmal vesicles from skeletal muscle, E284
- L-Glutamine, electroneutral sodium absorption and, jejunum (piglet), G99
- $\gamma$ -Glutamyltransferase  
ammoniogenesis, proximal tubular, F402  
disposition in gastrointestinal tract, G530
- $\gamma$ -Glutamyl transpeptidase, protection from hyperoxia, alveolar macrophages, L102
- Glutarate, sodium-coupled transport, urinary bladder (crustacean), R147
- Glutathione  
dietary  
bioavailability of, G524  
disposition in gastrointestinal tract, G530  
lung, hypoxia and reoxygenation effects, H518  
lung injury, after short-term hyperoxia, L451  
metabolism, bathocuproine disulfonate and, hepatocytes, E443  
oxidant injury and, alveolar macrophages, L102  
Glutathione redox, pathway, heart, H137  
Glycerol trioleate, glycerol tristearate comparison, small intestine, G386  
Glycerol tristearate, glycerol trioleate comparison, small intestine, G386  
Glycerophosphorylcholine  
accumulation, MDCK cells, F653  
aldose reductase inhibition of, renal medulla, F733  
factors affecting, renal medullary cells, F847
- Glycine  
mechanism of cytoprotection, kidney, F80  
oxidation, quantitative partition (pig), E483
- Glycogen  
depletion, prolonged exercise, muscle, C834  
deposition, insulin effects, voluntary running, E706  
liver, fasting and, E804  
metabolism, liver, food deprivation effects, E692  
repletion  
hepatic, fed and fasted humans, E335  
liver, fasted-refed transition, E513  
synthesis, isotopomer patterns in, E757
- Glycogenolysis  
amylin effects, E457  
food deprivation effects, liver, E692  
lactate formation from glucose, E397  
vasoactive peptides and phenylephrine effects, hepatocytes (teleost), E644
- Glycolysis  
free fatty acid effects, impaired oxidative capacity, E451  
IMP formation and, ATP turnover effects, skeletal muscle, C409  
localization, kidney, C286  
proximal tubules, proliferation and glucose metabolism, C455  
Glycolytic component, spermatic energy, acid-base metabolism and, C660  
Glycyl-L-sarcosine, transport, ATP-depleted enterocytes (chick), G775
- Goblet cells  
intestinal, cytoskeleton of, G991  
secretion, neural control of, airway (guinea pig), L108
- G<sub>s</sub> protein, activated, cardiac calcium current and, H264
- G proteins  
acetylcholine-sensitive potassium channels, atrial myocytes, H1730  
coupling, pregnancy effects, myometrium (guinea pig), E57  
expression, cardiac myocytes, H432  
ion channels coupled with, heartbeat regulation, H1621  
modulation of calcium channels, ventricular myocytes, H820
- Gracilis muscle, adenosine, active hypere-mia and, H1295
- GRF: see Growth hormone-releasing factor
- Growth: see also Development; Maturation  
airway epithelial cells, cysteinyl leukotrienes and, L255  
aortic, perinatal (lamb), H1247  
cell, prostaglandins and stretch-induced protein turnover, skeletal muscle (chicken), C232  
collagen synthesis and, glucose effects, proximal tubule, F705  
heart cell, angiotensin II stimulation of, H610  
microvascular, intestine, juvenile to early adult, G282  
pancreas, bile salt-induced, reduced CCK mediation of, G86  
regulation, vascular system, R393  
work-induced, skeletal muscle, insulin-like growth factor, E89
- Growth factors  
alveolar type II cells, derived from lung fibroblasts, L247  
antimitogenic activity, mesangial cells, E312  
epithelial cell, neonatal lung, L415  
milk-borne, identification of, G1056  
sodium-hydrogen exchange and, AR42J pancreatic cells, G842  
sodium influx, SV40-transformed WI-38 cells, C549  
urokinase and PAI-1 expression, bronchial epithelial cells, L262
- Growth hormone  
renal expression, hypersomatotropic states, F251  
renal function and, normal and reduced renal mass, F747  
sodium-potassium pump and, muscle, E278  
stimulation, IGF I gene expression, renal collecting duct, F474  
work-induced growth, skeletal muscle, E89
- Growth hormone-releasing factor, central injection of, feeding behavior and, R651
- Guanethidine  
blood pressure and, awake state, H1337  
sympathectomy, neuropeptide Y and noradrenergic mechanisms in, R371
- Guanosine monophosphate, cyclic  
activation, interleukin 1 and endotoxin effects, vascular smooth muscle, R38  
ANF and, sodium chloride transport in inner medullary collecting duct, F258  
ANF effects, renal carcinoma cells, C427  
ANF receptors, glomerular epithelial and mesangial cells, F619  
ANF synthesis and, inner medullary collecting duct subsegments, F535  
antimitogenic activity, mesangial cells, E312  
capsaicin desensitization, atrophy in brown fat and, R324  
endocardium, ANF release and, H983  
epicardial coronary dilation and, H340  
formation, L-arginine-dependent, vascular smooth muscle, H1813  
relaxation associated with, pulmonary artery, superoxide anion effects, H1056  
VIP-induced alterations, lower esophageal sphincter, G239
- Guanylate cyclase  
activation, interleukin 1 and endotoxin effects, vascular smooth muscle, R38  
ANF effects, renal carcinoma cells, C427  
ANP receptor subtype, kidney, F26  
epicardial coronary dilation and, H340  
relaxation associated with, pulmonary artery, superoxide anion effects, H1056
- Gustatory response  
nerve, monosodium glutamate and 5'-nucleotides synergism, R420  
recovery, after early sodium chloride deprivation, R786  
salt intake, calcium deprivation and, R411  
threshold, circadian rhythm in, R931
- Gut: see Intestine
- ## H
- Halothane  
anesthesia  
effects on hearts, H1118  
flow-independent pulmonary vasoconstriction and, H74  
negative inotropy, ventricular myocardium (ferret), H827  
sensitivity (pig), R133  
tension induced by, skinned muscle fibers, C503
- Heart  
adenosine response, ontogeny response (guinea pig), H1637  
adenosine transport, transcapillary (guinea pig, rat), H772  
ANP secretion, basal and stretch-augmented, C801  
arachidonic and linoleic acid absorption, fatty acid deficiency and, G116  
arrested, oxygen consumption in, H1142  
arrhythmia, sleep apnea and, R282  
ATP-sensitive potassium channels, quinidine blockade of, H1609  
barium-induced contracture, metabolism during, H1566  
calcium current, activated G<sub>s</sub> protein and, H264  
changes, long-term pressure overload, H849  
congestive failure  
experimental, endothelin effects, F312



- norepinephrine clearance, desipramine effects, E261
- denervation, fluid load after, R70
- electrophysiology, potassium channel permeability (guinea pig), H1448
- excised ventricular epicardium, biaxial mechanical behavior of, H101
- extracellular magnesium, T- and L-type calcium currents, H1842
- failure
- $\beta$ -agonist sensitivity in atrial cells, H1009
  - ANP effects before and after, H1643
  - autonomic pathophysiology in, H689
  - congestive, ANF effects on tubuloglomerular feedback, R97
  - high-output, ANF release and natriuresis in, H1374
  - renal response to ANF, R84
- function
- anoxia and acidosis,  $^{31}\text{P}$ -NMR measurements, heart (turtle), R521
  - sodium and calcium, anti-free radical agent effects, H137
  - urodilatin effects, men, F832
- ganglion, neurotransmission in, neonate, H997
- glucose metabolism, 2-FDG analysis of, H1022
- G protein expression in, potassium chloride depolarization and, H432
- hypertrophy
- acidosis effects on skinned muscle fibers, H1044
  - angiotensin II in, H610
  - male and female, sex hormones and, H866
  - pressure-overload, renin-angiotensin system involvement in, H324
  - interstitial adenosine, epicardial disks (guinea pig), H1471
- ischemia and reperfusion
- intracellular sodium measurements, NMR (ferret), H1767
  - iron effects on membrane phospholipid breakdown, H1101
  - protective effects of adenosine deaminase inhibitor, H835
- ischemic, glucose oxidation, dichloroacetate stimulation of, H1079
- ischemic- and hypoxic-perfused, endothelial dysfunction in, H1660
- low extracellular sodium, inotropic effects of, H712
- membranes, phosphoinositide phosphorylation, C987
- mitochondrial protein synthesis, insulin stimulation of, E413
- negative inotropy, halogenated anesthetics and (ferret), H827
- nucleotide pools, hemorrhage and resuscitation, H1781
- oxygenation, ischemia and reperfusion, H1477
- positive inotropism, low concentrations of leukotrienes, H1239
- postischemic recovery
- heat-shock enhanced, H424
  - reperfusion and, H879
  - regional capillary geometry, H204
  - response to electrical stimulation, atrial and ventricular ganglionated plexi, H1365
  - response to hypoxia (seal, pig), R849
  - saline-perfused, nondefatted albumin, H1606
- single sodium channels, temperature sensitivity of, C599
- sympathetic nerve, synchronized activity, awake state, R499
- sympathetic-parasympathetic imbalance, AV junctional rhythm induced by, H839
- tissue, anoxia and acidosis effects (turtle), R15
- tricarboxylic acid cycle, model, H987
- tumors, differentiated atrial cardiomyocytes, H1826
- ultrastructure, chronic tachycardia and (swine), H218
- ventricular myocytes, G protein modulation of calcium channels, H820
- Heart atria
- appendectomy, ANP plasma levels and, awake state, R1017
  - G protein expression in, potassium chloride depolarization and, H432
  - irregular pacing, ventricular response during, H1015
- left
- compliance, H1006
  - ganglion neurons, activity of, H1207
  - microsphere injection, coronary flow, H635
  - pressure, regional peak lengthening rates and, H480
  - pressure: see Pressure
- Heartbeat, regulation, G protein-coupled ion channels, H1621
- Heart cells: see Cardiomyocytes; Myocytes
- Heart rate
- anoxia and acidosis effects (turtle), R15
  - atrioventricular conduction and, separate parasympathetic control, H536
  - baroreflex control of, parasympathetic impairment of, R76
  - dependence, excitability of papillary muscle (guinea pig), H290
  - fetus, uterine blood flow effects, R1004
  - posterior hypothalamic stimulation, sinoaortic baroreceptor denervation, H720
  - pressor response, stimulation of nucleus ambiguus, R955
  - reflex response, isometric muscle contraction, H1380
  - schedule-induced activities, R485
  - streptozotocin treatment, awake state, substance P and somatostatin effects, R405
- Heart ventricles
- dysfunction, chronic tachycardia and (swine), H218
  - epicardium, biaxial mechanical behavior of, H101
- fibrillation
- deterministic model, H1544
  - reperfusion injury, adenosine deaminase inhibitor effects, H835
  - interdependence, theoretical model, H181
  - pacing, myocardial fiber strain and blood flow by, H300
  - postischemic recovery, heat-shock enhanced, H424
  - refractoriness, atrioventricular relations to, H1463
  - regional function, left atrial pressure and, H480
  - remodeling, aging, severe myocardial dysfunction induced by, H1086
- response, irregular pacing and defibrillation, atrial, H1015
- Heart ventricles, left
- acute ischemic regions, three-dimensional mapping, MRI, H1492
  - afferents, kidney function and, F18
  - anterior and posterior wall, finite strains in, H1409
  - antioxidant therapy, myocardial stunning and, H889
  - dysfunction, *E. coli* endotoxemia, H504
  - enlargement, chronic overload-induced, captopril effects, H796
- function
- afterload effects in closed chest, H619
  - force-velocity and end-systolic pressure-volume relations, H1419
  - microsphere injection, coronary flow, H635
  - passive electric properties, diastolic shape relations, H457
- Heartworm, parasite products, endothelium-dependent relaxation, H648
- Heat
- initial and recovery, contracting heart muscle, H1601
  - intracellular acidification and, A-431 cells, C727
  - production, skeletal muscle contraction and, R197
- Heat-shock, postischemic recovery and, ventricular, H424
- Heat stress, vasodilation induced by, limb, compartmental fluid repletion effects (baboon), R1139
- HeLa cells, phosphate uptake, calcium-dependent regulation of, thapsigargin and, F727
- Hematocrit
- adaptations, high altitude, H1667
  - arteriolar oxygen transport and, striated muscle, H1694
  - response, fixed volume hemorrhage, H190
  - transmural gradient, left ventricular myocardia, H403
- Hemoconcentration, arteriolar oxygen transport and, striated muscle, H1694
- Hemodilution
- during cerebral ischemia, brain injury and edema, H211
  - perfusate, coronary pressure-flow relations, H603
- Hemoglobin
- adaptations, high altitude, H1667
  - arteriolar oxygen transport and, striated muscle, H1694
  - maximal oxygen consumption, quantitative genetics (snake), R986
- Hemorheology, perfusate, coronary pressure-flow relations, H603
- Hemorrhage
- adrenal and renal nerve activity, anesthesia, H1134
  - endocrine responses to, food deprivation effects, E692
  - graded, renal response to, awake state (pig), R119
  - hypertonic resuscitation from, central angiotensinergic system and, H1752
  - metabolic and hormonal activations during, brain, R305
  - moderate, renal effects of, pregnancy, awake state, F945

- Hemorrhage (*continued*)  
 organ function after, preheparinization and, R645  
 rapid, restoration of blood volume after, fetus, H567  
 resuscitation and, R663  
   heart and brain nucleotide pools, H1781  
 thermal nociception, ACTH and norepinephrine release by blood loss, R1236
- Henle's loop  
 alkalosis, cell type differences, F778  
 sodium-chloride reabsorption, vitamin D-induced hypercalcemia effects, F122
- Heparin, preheparinization, organ function after hemorrhage and, R645
- Hepatectomy, partial, regenerating liver, gene expression in, G340
- Hepatic nerve  
 electrolyte transport, hypertonic solution effects, R1289  
 glucose production and, muscular work, E195
- Hepatocellular function, after hemorrhage and resuscitation, preheparinization effects, R645
- Hepatocytes  
 amino acid transport, different protein diet effects, E614  
 basolateral protein in, liver, C279  
 copper accumulation, albumin effects, G219  
 copper transport in, albumin and histidine effects, G212  
 cyst(e)ine metabolism, bathocuproine disulfonate and, E443  
 glucose metabolism, obesity, E389  
 iron uptake, cellular iron concentration effects, G611  
 serum factor effects, exogenous and endogenous triglycerides, G15  
 sodium-calcium exchange, G56  
 vasoactive peptides, phenylephrine and (teleost), E644
- Hepatoma, free fatty acid effects, glycolysis, E451
- Hibernation  
 changes, mucosal structure of intestine (squirrel), R385  
 testosterone and (squirrel), R760
- Hippocampus  
 adrenal steroid receptor binding, after stress or dexamethasone, E405  
 striatum extracellular lactate and, exercise and stress effects, R773
- Hippurate, oxidation, quantitative partition (pig), E483
- Histamine  
 c-fos expression, airway smooth muscle, L365  
 endothelium and mechanical responses with, pulmonary veins (monkey), H1032  
 hypercontractility to, spastic coronary artery smooth muscle, H9  
 mast cell deficiency, impaired gastric acid secretion, G41  
 prediction of stress, smooth muscle (swine), C251  
 pressor response to peripheral hyperosmolality and, brain, R507  
 release, gastric, RX 77368 effects, G599  
 resistance, brain vessels, H243
- Histidine, copper transport and, fibroblasts, G212
- HL-60 cells  
 cytosolic free calcium ions, time-varying magnetic fields, C687  
 sodium-hydrogen exchange, essential activation of, C490
- Homocholic acid taurine, selenium-75-labeled, ileum and jejunum, G233
- Hormones: *see also* specific hormone  
 aging and endurance training effects, healthy men, E66  
 endocrine, pulse generators, E351  
 release, intravenous amino acids and, G173
- Hormonal control, calcium and phosphate, regulation in calcitonin infusion, E370
- Hormonal responses  
 high-salt intake effects, H1629  
 short-term, food intake, peripubertal female, R25
- Horseradish peroxidase  
 excretion, DBcAMP effects, liver, G727  
 glucagon cholerisis and (guinea pig), G736
- Hot hand technique, body temperature, forearm blood flow and deep venous oxygen saturation with, E639
- HRP: *see* Horseradish peroxidase
- Hunger: *see* Feeding
- Hyaluronan  
<sup>3</sup>H-labeled, removal rate of, skin, H532  
 prenatal lymph, skin, H1097
- Hyaluronic acid, removal rate, skin, H532
- Hydralazine, serotonergic neuron response to, R963
- Hydraulic conductivity, albumin component attenuation of, capillary permeability (frog), H1357
- Hydrin 1, fluorescent analogue, E524
- Hydrochlorothiazide, sodium chloride transport and, inner medullary collecting duct, F258
- Hydrogen  
 base transport, confocal fluorescence imaging and, C365  
 flux, apical surface, distal colon, C35  
 secretion  
   low extracellular calcium ion effects, MDCK cells, C19  
   newborn, maternal milk PGE<sub>2</sub> relations, G702
- Hydrogen-ATPase, plasma membrane, lung macrophages, C586
- Hydrogen gas, clearance, capsaicin-sensitive vagal afferent fibers, G1037
- Hydrogen ions  
 ammonia flux, exercise and recovery, E170  
 extrusion mechanisms, outer medullary collecting duct, F628
- Hydrogen peroxide  
 cGMP-associated relaxation and, pulmonary artery, H1056  
 exposure, metabolic changes after, alveolar type II cells, L57  
 neutrophils, sarcolemmal sodium-potassium-ATPase and, H1330  
 oxidative stress, kidney cells, F338  
 oxygen metabolites derived from, surfactant metabolism and, L328  
 phagocytic functions and, alveolar macrophages, L87  
 tert-butyl, oxidative stress, kidney cells, F338
- Hydrogen-potassium-ATPase  
 gastric, ontogeny of, suckling, G913  
 gene expression, developing fundus, G108  
 ion transport, oxyntic cell apical membranes, G850
- 6-Hydroxydopamine, liver denervation, evaluation of methods, G781
- 12-HETE: *see* 12S-Hydroxyeicosatetraenoic acid
- 15-Hydroxyeicosatetraenoic acid, product of arachidonate, transformed erythroid cells, C849
- 12S-Hydroxyeicosatetraenoic acid, sodium-coupled uptake and, proximal tubular cells, F816
- 1 $\alpha$ -Hydroxylase, renal, rapid inhibition of, E272
- Hydroxyl radical  
 membrane phospholipid breakdown and, ischemic-reperfused heart, H1101  
 neutrophils, sarcolemmal sodium-potassium-ATPase and, H1330
- 5-Hydroxytryptamine: *see* Serotonin
- Hyperaminoacidemia, leg tissue, euglycemic hyperinsulinemia effects, E185
- Hyperammonemia, cerebral blood flow during, arterial pH modulation of, H34
- Hypercalcemia  
 phosphate transport and, kidney cells, F929  
 vitamin D-induced, sodium-chloride reabsorption and, thick ascending limb, F122
- Hypercapnia  
 heart, during respiratory acidosis (ferret), H843  
 hypoxia and, cardiovascular system, H932  
 temperature effects, awake state, R492  
 vasopressin role during, awake state, R690
- Hypercontractility, histamine, spastic coronary artery smooth muscle, H9
- Hyperemia  
 active, adenosine and, soleus and gracilis muscle, H1295  
 reactive  
   arteriolar, flow dependent factor in, H1313  
   myocardial energy metabolism during, H1190  
   neuropeptide Y effects, H1709
- Hyperglycemia  
 effects, lipolysis, E542  
 glomerular response to, diabetic neuropathy, F545  
 hypoinsulinemia and, fetal glucose utilization, E506  
 sustained, testicular dysfunction and fertility with, E881
- Hyperglycemic clamp, insulin secretory capacity, endurance-trained and untrained young men, E155
- Hyperinsulinemia  
 euglycemic, amino acid uptake and, leg tissue, E185  
 vagal stimulation, diminished cardiovascular responsiveness to, R842
- Hyperinsulinemic clamp  
 amino acid disposal, glucagon role in, E225  
 norepinephrine infusion effects, insulin sensitivity, E210



- Hyperlipidemia, triglyceride production, hepatic, diet effects, E177
- Hyperosmolality  
arginine vasopressin effects, CSF composition, R1250  
pressor response to, histamine regulation of, brain, R507
- Hyperoxia  
 $\gamma$ -glutamyl transpeptidase protection from, alveolar macrophages, L102  
prostaglandin synthesis and, perinatal lung cells, L95  
short-term, lung injury after, L451
- Hyperparathyroidism, uremia, phosphorus restriction effects, F432
- Hyperplasia, histamine stimulation, *c-fos* expression, L365
- Hyperpolarization  
dilation and, cerebral arterial, H668  
insulin and isoproterenol effects, cardiomyocytes, H554
- Hypersensitivity, delayed-type, expression, fever effects, R1
- Hypertension  
acute  
free radical effects, H497  
leukocyte and PAF effects, H1161  
angiotensin II  
aldosterone role in, R102  
chronic lymph flow and transcapillary fluid flux during, R1205  
salt sensitivity in, R1012  
arterial pressure, after barodenervation, R1172  
blood pressure oscillations, awake state, H1050  
blood volume and arterial pressure with, volume loaded dogs, H1317  
cardiovascular reactivity and, H248  
chronic, endothelium-dependent dilation of basilar artery, H1455  
chronic portal venous, awake state, responses to hypotension in, G48  
development of, central mineralocorticoid binding sites in, R1025
- DOCA-salt  
central mineralocorticoid binding sites in, R1025  
nifedipine in, glomerular injury, F598  
during cerebral ischemia, brain injury and edema, H211  
genetic, renal vascular response to angiotensin and thromboxane, F372  
hemorrhage effects, muscle blood flow, H860  
hypoxic pulmonary, polyamine accumulation in, L351  
late-onset, aging myocardial microvesicles, H1681  
mineralocorticoid, ANP receptors in renal papilla, F130  
mitochondrial ATP synthase, regulation, heart, H1264  
myocardial hypertrophy induced by, isoproterenol and oxygen supply in, H346  
neonatal, abnormal membrane properties in neurons, C389  
obesity-induced, baroreflex sensitivity in, model, R981  
portal  
bile acid effects on hyperdynamic circulation, G21  
plasma volume and hyperdynamic circulation, G498
- progressive glomerular injury and, focal glomerular ischemia, F239
- pulmonary  
EDRF role in, at birth, H1921  
neural control of ANF release (pig), H735  
renovascular  
blood pressure, lipoxygenase pathway and, H1774  
renin and pressor responses to, naloxone effects, E432  
salt-sensitive, parasympathetic impairment of baroreflexes, heart, R76  
spontaneous  
developmental changes in calcium and calcitriol, F104  
renal ANP receptors in, F605  
tubuloglomerular feedback in, F529  
vagal stimulation, diminished cardiovascular responsiveness to, R842
- Hyperthermia  
brown fat, atrophic state of, R61  
intracellular acidification and, A-431 cells, C727  
malignant, halothane sensitivity (pig), R133
- Hypertonic solution, electrolyte transport and, jejunum, H1289
- Hypertrophy  
cardiac, long-term pressure overload, H849  
cellular, angiotensin II induction of, proximal tubular cells, F768  
left ventricular, captopril in volume overload, H796  
muscle, fiber formation and, C92  
renal  
focal glomerular ischemia and, F239  
growth hormone stimulation, IGF I gene expression, F474  
IGF I expression, F251
- Hypochlorous acid  
neutrophils, sarcolemmal sodium-potassium-ATPase and, H1330  
production, neutrophils, TNF infusion effects, L276
- Hypoglycemia  
chronic vs. acute, glucose utilization and cortical function in, E729  
diminished epinephrine response to, enlarged adrenal medulla and, R998  
gastric motility, pituitary oxytocin secretion and, R447  
insulin-induced, protein metabolism and, E342  
maternal, fetal response to catecholamines, R1126
- Hypoinsulinemia  
hyperglycemia and, fetal glucose utilization, E506  
thyroid hormone and epinephrine interaction, E305
- Hypophosphatemia, mitochondrial, renal 25-hydroxyvitamin-1 $\alpha$ -hydroxylase activity and, E814
- Hypophysectomy, sodium-potassium pump and, muscle, E278
- Hypoproteinemia, blood volume and arterial pressure with, volume loaded dogs, H1317
- Hypotension  
diazoxide-induced, thirst relations, R362  
drinking behavior, circulating angiotensin II and, R531  
hemorrhage, food deprivation effects, E692
- hemorrhage effects, muscle blood flow, H860
- opioid blockade, awake state, H512
- renal, renin and pressor responses to, naloxone effects, E432
- renin activity, progesterone-cortisol interaction in, R350
- responses to, awake state with chronic portal venous hypertension, G48
- Hypothalamic-pituitary-adrenocortical axis, glucose homeostasis and, during development, E601
- Hypothalamus  
anterior, injection of CRH, sympathetic activity and, R799  
control, sympathoadrenal activity, R470  
energy metabolism, exercise and, R478  
lateral, perifornical region, neurons controlling cardiovascular response to emotion, R943  
lateral lesions, thermogenesis after meals, isoproterenol and cold, E534  
medullary reticular formation and, mediation of coronary vasoconstriction, H917  
posterior, stimulation, baroreceptor denervation, H720  
RU 486 effects, development of obesity, R539  
stress hyporesponsive period, during development, neonate, E601  
ventromedial  
lesions, gastric emptying and, R658  
obesity syndrome, R829
- Hypothermia  
calcium content and, hypoxic myocytes, H333  
regional blood flow, spinal cord, H1649
- Hypovolemia  
bicarbonate secretion and blood flow with, duodenum, G179  
graded central, sympathetic activity during, hypoxemia and, H1197
- Hypoxemia  
graded central hypovolemia, sympathetic activity during, H1197  
prolonged, fetal endocrine responses to (sheep), R703  
vasopressin role during, awake state, R690
- Hypoxia  
acidification  
intracellular sodium ion activity and, C169  
sodium and calcium, myocardium, C940  
adenosine and, thoracic aorta, H62  
ANF release, neural control of (pig), H735  
chronic, hepatic cytochrome P-450 in, C654  
control of breathing after, neonate, R836  
differential responses, renal proximal tubules, F176  
hypercapnia and, cardiovascular system, H932  
myocytes, calcium content, hypothermia effects, H333  
progressive and acute, heart responses (seal, pig), R849  
reoxygenation and  
lung glutathione system, H518  
myocardium, H784  
temperature effects, awake state, R492  
tension and, pulmonary and mesenteric arteries, H281

## I

- Ibuprofen  
interaction with captopril, glomerular and tubular function, F233  
reoxygenation, anoxic endothelium, C738
- IGF I: *see* Insulin-like growth factor I
- Ileum  
basolateral membrane, sulfate and oxalate exchange for bicarbonate, G807  
brush-border membrane  
chloride-bicarbonate exchanger, G666  
sodium-adenosine cotransport, G504  
infusion, motor pattern of small intestine and, G78  
migrating motor complex (turkey), G329  
plasma membrane, taurocholate binding sites in, G394  
postprandial motility, regulation of, G767  
taurocholate kinetics, G233  
villus cells, sodium-hydrogen exchanger in, G802
- Illuminance, serum and pituitary TSH and, E162
- Immunofluorescence  
glucose transporter  
kidney, C286  
liver, C279
- Immunoglobulin E, food allergy, jejunal smooth muscle contraction and, G6
- IMP: *see* Inosine monophosphate
- Indicator-dilution studies  
inert gas transport, myocardium, H167  
multiple, urea and  $^{58}\text{Co}$ -EDTA, G32
- Indomethacin  
CSF, vasodilation and, recombinant interleukin 1 $\alpha$  (piglet), H1486  
endogenous, sodium-chloride transport and, proximal colon (pony), G62  
endothelium-dependent dilation, basilar artery, chronic hypertension, H1455  
maternal milk, gastric acid secretion in newborn and, G702  
metabolism, clara cells, L213
- Infarction, myocardial, protection by preconditioning, H1822
- Inflammatory bowel disease, chemotactic peptide effects, electrolyte transport, intestine, G947
- Inosine, coronary flow and, H759
- Inosine monophosphate  
ammonia flux, exercise and recovery, E170  
formation, ATP turnover effects, skeletal muscle, C409
- Inosine monophosphate lactate, fatigue during prolonged exercise, muscle, C834
- Inositol  
accumulation, MDCK cells, F653  
aldose reductase inhibition of, renal medulla, F733  
factors affecting, renal medullary cells, F847
- Inositol 1,4,5-trisphosphate, formation, stimulation by guanine nucleotides and calcium, G410
- D-*myo*-Inositol 1,4,5-trisphosphate, production, calcium release and, uterine cells (chicken), E872
- Inositol phosphates, CCK-induced formation, pancreatic acini, G655
- Inositol phospholipids, turnover, insulinoma cells, E73
- Inositol tetrakisphosphate, production, lacrimal gland, G274
- Inositol trisphosphate, elevated cytosolic calcium and, phosphate transport, OK cells, F485
- Inositol trisphosphate isomer, production, lacrimal gland, G274
- Inotropism, positive, low concentrations of leukotrienes, heart, H1239
- Inotropy, negative, ventricular myocardium (ferret), H827
- Instrumentation, laboratory experience, S4
- Insulin  
acute effects, glucose metabolism, E561  
binding, skeletal muscle, E517  
carbohydrate and protein metabolism and, voluntary running, E706  
dose-dependent effects, plasma free fatty acid oxidation, E736  
enhanced muscle glucose transport and, after exercise, E685  
flavor aversions and preferences with, real or sham feeding, R823  
glucose cycling and, healthy subjects, E626  
glucose metabolism, 2-FDG analysis of, heart, H1022  
glucose transport capacity, endurance training effects, E778  
glucose transporter content, muscle fiber types and, E593  
glucose utilization and, fetal, E506  
hepatic nerves, exercise and, E195  
hypoglycemia induced by, protein metabolism and, E342  
lactate formation from glucose, E397  
leucine and  $\alpha$ -ketoisocaproate metabolism, type 1 diabetes, E96  
receptor kinase, changes with aging, skeletal muscle and liver, E27  
receptor: *see* Receptors  
reduced adipin mRNA and, obesity, R184  
release  
calcium handling effects, E117  
protein kinase C and, E73  
response  
 $\beta$ -cells, before non-insulin-dependent diabetes (monkey), R612  
muscle protein metabolism, starvation effects, E477  
secretagogues, capacitation, pancreatic islets, E548  
secretion  
calmodulin and, E856  
impaired, PTH excess and, F210  
maternal diet effects, islets, E568  
pancreatic  $\beta$ -cell somatostatin receptors, E216  
polyamines in mitogenic and secretory responses, pancreatic islets, C828  
secretory capacity, endurance-trained and untrained young men, E155  
sensitivity  
mammary gland during lactation, E828  
norepinephrine infusion effects, E210  
obesity-prone and obesity-resistant rats, R1103  
testosterone effects, muscle, E555  
stimulation, mitochondrial protein synthesis, heart, E413  
thyroid hormone interaction and, E305  
transmembrane potential and, isolated myocytes, H554
- uptake  
euglycemic hyperinsulinemia effects, leg tissue, E185  
from plasma into cerebrospinal fluid, E378
- Insulin-like growth factor  
activation of, work-induced skeletal muscle growth, E89  
sodium-potassium pump and, muscle, E278
- Insulin-like growth factor I  
acute effects, glucose metabolism, E561  
gene expression, growth hormone stimulation of, renal collecting duct, F474  
renal expression, hypersomatotropic states, F251  
renal function and, normal and reduced renal mass, F747
- Insulinoma cells, inositol phospholipid turnover, NaF-induced, E73
- Integrin  
antibody against, reperfusion-induced lung injury and, L315  
extracellular matrix receptors, kidney cortex, F783
- $\gamma$ -Interferon  
hormonally regulated proteins and, fetal lung, L283  
TNF- $\alpha$  and, prolactin release, E672
- Interleukin 1  
activation, guanylate cyclase, vascular smooth muscle, R38  
plasma inhibitor of, endotoxin effects, R993  
TNF infusion and, neutrophils, L276
- Interleukin 1 $\alpha$   
interleukin 1 $\beta$  fragment, somnogenic activity, R439  
recombinant, vasodilation and increased CSF prostanooids (piglet), H1486
- Interleukin 1 $\beta$   
growth induced by, mesangial cells, cyclooxygenase inhibition of, F419  
TNF and, lipopolysaccharide fever, R724
- Interleukin 6, plasma profile of, fever-inducing doses of lipopolysaccharide and, R126
- Intermediolateral nucleus, microinjection of ACh and substance P, cardiovascular response and, R357
- Interventricular septum, wall stretch effects, coronary hemodynamics, H1869
- Intestinal nerves, small bowel motility, enteric neural defunctioning, G226
- Intestine  
alkaline phosphatase release, phospholipase effects, G618  
basolateral membrane, sulfate and oxalate exchange for bicarbonate, G807  
basolateral protein in, liver, C279  
brush-border membrane  
chloride-bicarbonate exchanger, G666  
phosphoinositide metabolism in, G410  
brush-border membrane vesicles, lysine transport (eel), R1181  
calcium and phosphorus absorption, vitamin D-independent, G631  
electrolyte transport, chemotactic peptide effects, G947  
exposure to sodium oleate, gastric emptying and, G1031  
D-glucose transport, streptozotocin diabetes, G571  
intramural pH, endotoxemia and mesenteric occlusion (pig), G519

leucine metabolism, splanchnic region role in, E36  
 luminal glucose concentrations, normal conditions, G822  
 microvasculature, maturation of, G282  
 microvessels, pressure-diameter relations, sympathetic activity and, H674  
 molecular forms of CCK in, G364  
 monosaccharide and amino acid transporters, ontogenetic development of, G544  
 motor activity  
   fasted state, *T. spiralis* effects, G693  
   neural control of, G593  
 mucosal structure and function, seasonal changes (squirrel), R385  
 pacing, regulation of, G928  
 paracellular absorption, body size relations, G290  
 permeability: see Permeability  
 plasma membrane, PCMBs inhibition of chloride transport (sea hare), R1111  
 protein metabolism, insulin-induced hypoglycemia effects, E342  
 secretion, apical vessels, aldosterone-induced, F65  
 sodium-glucose cotransporter, sequence homologies among, C605  
 superior mesenteric artery, hypoxia-induced vasodilation in, G605  
 transport, fluid transport and, G348  
 worm-free region of *Trichinella* infection, altered smooth muscle function in, G306  
 Intestine, small  
   anion-transporting epithelia, fluorescent stilbene binding proteins in, C439  
   autoperfusion,  $\beta$ -casomorphin absorption (lamb, piglet), G443  
   brush-border membrane vesicles,  $\beta$ -alanine transport, G372  
   chylomicrons, fat feeding effects, G709  
   dietary glutathione in, G530  
   exposure to sodium oleate, gastric emptying and, G1031  
   glycerol tristearate comparison, glycerol trioleate, G386  
   luminal glucose concentrations, normal conditions, G822  
   motor activity, secretory diarrhea, G420  
   motor patterns, ileal infusion of nutrients and, G78  
   plasma membrane, taurocholate binding sites in, G394  
   secretory capacity of, aging effects, G474  
   submucosal cholinergic neurons, modulation by serotonin and neuropeptides, G1019  
 Intracardiac nerves, parasympathetic control, heart rate and atrioventricular conduction, H536  
 Intramural diffusion barrier, influence, arteriolar reactivity, H574  
 Iodoacetate, lethal injury, cardiac myocytes, C325  
 Ionic currents, respiratory neurobiology, L24  
 Ionophore A23187, permeability and, MDCK monolayers, C69  
 Ions  
   concentrations, cortical collecting duct, F778  
   handling, cecum, G786

transport  
   arachidonic acid regulation of, clara cells, L213  
   lung epithelium, perinatal period, L30  
 Ipsapirone, stress and, brain lactate, R773  
 Iron  
   concentration, cellular, iron uptake and, hepatocytes, G611  
   membrane phospholipid breakdown and, ischemic-reperfused heart, H1101  
   radical reactions mediated by, myocardial stunning, H1901  
 Ischemia  
   cardiac  
     endothelial dysfunction in, H1660  
     glucose oxidation, dichloroacetate stimulation of, H1079  
     G protein modulation of calcium channels, H820  
     reperfusion injury and, adenosine deaminase inhibitor effects, H835  
   cerebral  
     collateral perfusion studies, H560  
     hypertension and hemodilution during, H211  
     xanthine dehydrogenase-to-oxidase conversion, H1655  
   coronary, microcirculation in, H909  
   differential responses, renal proximal tubules, F176  
   focal glomerular, hypertension and glomerular injury caused by, F239  
   forearm, cardiovascular and sensory responses, hand exercise, R1156  
   global, age-related cerebrovascular response (pig), H1551  
   gracilis muscle, complement activation and white cell sequestration in, H525  
   left ventricular, three-dimensional mapping, MRI, H1492  
   myocardial  
     acidification and intracellular sodium ion activity during, C169  
     dietary n-3 fatty acid effects, H1518  
     neuropeptide Y effects, H1709  
     selective turnover of sarcolemmal phospholipids, C325  
     slow and fast heart rate, ATP depletion in, H1759  
   reperfusion and  
     cardiac oxygenation, H1477  
     leukocyte adherence induced by, PAF and, G300  
     leukocytes, elastase and, H390  
     microvascular injury induced by, model, G134  
   skeletal muscle  
     neutrophil contribution to dysfunction, H1809  
     prediction by glutamate dehydrogenase, C26  
   tonometric measurement, intestine (pig), G519  
   ventricular recovery, heat-shock enhanced, H424  
 Isobutylmethylxanthine, apical membrane sodium conductance and, cortical collecting duct, F823  
 Isocyanates, exposure to, bronchial epithelial cells, T-cell activation and, L320  
 Isoflurane  
   negative inotropy, ventricular myocardium (ferret), H827  
   anesthetic, effects on hearts, H1118

Isoleucine, food intake and, prepyriform cortex, R709, R716  
 Isoproterenol  
   activation, intrathoracic ganglionic neurons, H1108  
   adrenergic and cholinergic responses, bronchial arteries, H156  
    $\beta$ -adrenoceptors and, smooth muscle cells, stomach (guinea pig), G436  
   depression, endolymphatic sac direct current potential (guinea pig), R921  
   meals and cold, thermogenesis after, lateral hypothalamic lesions, E534  
   oxygen consumption during, myocardium, H346  
    $\beta$ -receptor subtypes, coronary circulation, H1575  
   single cardiomyocytes, high-speed digital imaging, H230  
   sodium-potassium-chloride cotransport, airway epithelia, C557  
   transmembrane potential and, isolated myocytes, H554  
   VIP effects, myocardial, H1559  
 Isotocin, phenylephrine actions and, hepatocytes (teleost), E644  
 Isotonic transients, stepwise shortening and, single muscle fibers (frog), C266  
 Isotopes, dilution, resting metabolic rate, aging effects, E233

# J

Jejunum  
   electrolyte transport, hypertonic solution effects, R1289  
   electroneutral sodium absorption, L-glutamine stimulation of (piglet), G99  
   infusion, motor pattern of small intestine and, G78  
   motor activity, neural control of, G593  
   mucosal structure and function, seasonal changes (squirrel), R385  
   postprandial, oxygen uptake and capillary exchange, thromboxane effects, G430  
   smooth muscle contraction, food protein-induced, G6  
   taurocholate kinetics, G233  
   transit, regulation of, G928  
   water and electrolytes, meal-stimulated absorption, G402  
 Junction  
   gap, F-actin distribution in (bass), C205  
   gastroesophageal, CNS vagus control of pressure, G899  
   tight, formation, calcium role in, epithelial cells, C978  
 Juxtaglomerular apparatus, renin secretion and, F186

# K

Kallikrein  
   enzyme, vectorial secretion, renal cells, C869  
   release, polarity of, kidney, F752  
 Ketoacidosis, diabetic, osmoregulation of vasopressin in, E723  
 Ketogenesis, fatty acids, mitochondrial, liver, endotoxin rats, E498  
 Ketoisocaproic acid, deamination and decarboxylation, fetoplacental, E492  
 $\alpha$ -Ketoisocaproic acid  
   metabolism  
     insulin effects, type 1 diabetes, E96

- $\alpha$ -Ketoisocaproic acid (*continued*)
  - insulin-induced hypoglycemia effects, E342
  - splanchnic region role in, E36
- 2-Ketoisocaproate, nitrogen sparing of, parenteral feeding, E633
- Ketone body
  - islet function and
    - calcium handling and, E117
    - rubidium handling and, E123
  - production rates, systemic pH effects, E327
  - turnover, measurement of, E890
- Ketones, plasma, fasting duration relations, neonate (seal), R1086
- 6-Ketoprostaglandin, endothelin and, renal actions, F645
- Kidney
  - anion-transporting epithelia, fluorescent stilbene binding proteins in, C439
  - ANP receptors
    - spontaneous hypertension, F605
    - subtypes, autoradiographic localization, F26
  - arachidonic and linoleic acid absorption, fatty acid deficiency and, G116
  - arginine synthesis, E437
  - nephron, F916
  - autoregulation
    - tubuloglomerular feedback, model, F715
    - tubuloglomerular feedback interactions, F60
  - basolateral plasma membrane, bilitranslocase localization in, F559
  - brush-border membrane
    - putative sodium-hydrogen exchanger, F867
    - sulfate inhibition of phosphonoformic acid binding, F286
  - brush-border membrane vesicles, dopamine inhibition of sodium-hydrogen exchanger, F297
  - carcinoma cells, erythropoietin secretion, response to ANF, C427
  - circulatory action of ANP, sympathectomy effects, R1275
  - clearance, after cardiac denervation, R70
  - collecting duct, IGF I gene expression, growth hormone stimulation of, F474
  - collecting duct basolateral membrane, chloride channel in, F46
  - cortex: *see* Kidney cortex
  - cytoprotection, alanine and glycine, F80
  - development
    - oxytocin receptors during, F872
    - transforming growth factor- $\alpha$  in, E256
  - differential responses, anoxia or hypoxia, F176
  - diluting segment, changes in channel density (frog), C1005
  - endothelin
    - effects, F217
    - prostacyclin interactions, F645
  - epidermal growth factor binding sites, segmental distribution of, F553
  - epithelial cell culture, regulation (opossum), C110
  - excretion, salicylic acid permeability and, F613
  - excretory function, ANP effects, before and after heart failure, H1643
  - failure
    - chronic, GH and IGF-I effects on kidney function, F747
    - microfilament role in proximal tubular structure and functional integrity, F279
  - function
    - ANF and blood pressure control, R973
    - arterial pressure after barodenervation, R1172
    - dopamine-2 mechanisms and, F793
    - fetal, uterine blood flow effects, R1004
    - urodilatin effects, men, F832
  - glomerulus: *see* Kidney glomerulus
  - glucose transporter, differential localization of, C286
  - graded hemorrhage effects, awake state (pig), R119
  - hemodynamics
    - intrarenal renin inhibition effects, R7
    - nifedipine and, F304
  - high proton flux, antidiuretic hormone water channels, F366
  - 25-hydroxyvitamin D-1 $\alpha$ -hydroxylase activity, mitochondrial phosphate transport and, E814
  - 25-hydroxyvitamin D<sub>3</sub>-1-hydroxylase, inhibition by 1,25-dihydroxyvitamin D<sub>3</sub>, E272
  - hypertension, late-onset, aging myocardial microvessels, H1681
  - IGF I expression, hypersomatotropic states, F251
  - kallikrein release, polarity of, F752
  - mass, normal and reduced, GH and IGF-I effects on renal function with, F747
  - medulla: *see* Kidney medulla
  - membranes, aged, PTH receptor downregulation in, F444
  - metabolic characteristics, adaptation to acidosis, R277
  - metabolic differences, glucose-dependent, F164
  - mitochondria: *see* Kidney mitochondria
  - moderate hemorrhage effects on, pregnancy, awake state, F945
  - monoaminergic innervation, F503
  - papilla: *see* Kidney papilla
  - pelvis: *see* Kidney pelvis
  - putrescine metabolism, confluent LLC-PK<sub>1</sub> cells, C84
  - renin gene-expressing cells, recruitment of, F660
  - repair, mercuric chloride nephrotoxicity, EGF and, F438
  - responses
    - lower body negative pressure, F573
    - to hypotension, intracoronary veratrine and aortic stenosis effects, awake state, F18
    - response to adrenergic stimulation, anterior third ventricle (duck), R294
    - sensitivity, subnormal levels of AVP and, R53
    - sodium and water excretion, centrally administered serotonin and, R1267
    - sodium-glucose cotransporter, sequence homologies among, C605
    - sodium-hydrogen antiporter
      - regional localization, respiratory acidosis, F512
      - sodium and calcium share of (lobster), F758
    - thick ascending limb, sodium-chloride reabsorption, vitamin D-induced hypercalcemia effects, F122
    - transepithelial acidification and, proximal tubules, C103
  - tubules: *see* Kidney tubules
  - tubuloglomerular feedback, ANF modulation of, R97
  - vascular resistance, endothelium-derived relaxing factor effects, F9
  - vascular response, angiotensin and thromboxane, genetic hypertension, F372
  - vasoconstriction, protein kinase C role in, C421
  - water channels, endocytosis in, C920
- Kidney cells
  - basolateral protein in, liver, C279
  - eicosanoid biosynthesis, phorbol ester mechanism of, F698
  - glomerular epithelial and mesangial, ANF receptors in, F619
  - high extracellular potassium effects, sodium-potassium-ATPase, F227
  - inorganic phosphate transport
    - cytosolic calcium elevation and, F485
    - PTH antagonists and, F389
  - intracellular pH regulation (opossum), C110
  - kallikrein-like enzyme, vectorial secretion of, C869
  - medullary, organic osmolytes in, F847
  - outer medullary collecting duct, pH regulation in, F902
  - phosphate transport, PTH-related protein and TGF- $\alpha$  effects, F929
  - proximal and distal tubular, oxidative stress in, F338
  - proximal tubular
    - angiotensin II and cellular hypertrophy, F768
    - cyclosporin A and vehicle toxicity of, C897
    - potassium channel activation by hypotonic shock, F348
  - sodium-hydrogen exchange
    - $\alpha_2$ -adrenergic receptor regulation of, F977
    - polarity and kinetics (opossum), C121
- Kidney cortex
  - carbon dioxide pressure in, F357
  - collecting duct
    - apical membrane, sodium conductance, cAMP mediation of, F823
    - calcium and protein kinase C, PGE<sub>2</sub> effects, F318
    - ion concentrations, F778
    - maturation of bicarbonate transport, F801
    - response to aldosterone, F88
    - salicylic acid permeability in, F613
    - sodium-chloride absorption, thiazide-sensitive, F519
    - synergistic actions of vasopressin and deoxycorticosterone, F147
  - extracellular matrix receptors, F783
  - oxygen diffusion shunt, preglomerular, F910
  - renin secretion, ethacrynic acid stimulation of, F539
  - sodium-hydrogen antiporter, regional localization, respiratory acidosis, F512
- Kidney glomerulus
  - filtration rate, ANP effects, F936
  - function
    - captopril and ibuprofen interaction in, F233
    - dopamine-2 and, F793
    - response to hyperglycemia, diabetic neuropathy, F545



- hyperfiltration, systemic amino acid administration, F739
  - injury
    - hypertension and, focal ischemia, F239
    - nifedipine in DOCA-salt hypertension, F598
  - superficial, oxygen diffusion shunt, renal cortex, F910
  - Kidney medulla
    - aldose reductase inhibition, osmotic effectors, F733
    - collecting duct
      - function ANF effects, F415
      - microperfusion of, F222
      - sodium chloride transport, ANF and cGMP effects, F258
    - inner collecting duct
      - adenosine and vasopressin interaction in, F679
      - protein kinase C and sodium-hydrogen exchange in, F666
      - subsegments, cGMP and ANF synthesis in, F535
      - vasopressin-regulated urea transporter, F393
      - water permeability, F986
    - outer collecting duct, hydrogen ion extrusion mechanisms in, F628
    - sodium-hydrogen antiporter, regional localization, respiratory acidosis, F512
    - vasopressin signaling in, C693
    - water transport, descending vasa recta, F688
  - Kidney mitochondria, glutamine transport, acute pH change effects, F863
  - Kidney papilla
    - ANP receptors in, mineralocorticoid hypertension, F130
    - sodium-hydrogen antiporter, regional localization, respiratory acidosis, F512
  - Kidney pelvis
    - pressure, regulation by diuresis and micturition, R637
    - smooth muscle cell membrane, electrical properties, F888
  - Kidney tubules
    - collecting
      - $\alpha_2$ -adrenoceptors, modulation of vasopressin action, F1
      - confocal fluorescence imaging, C365
      - water channel proton permeability, F366
    - cortical
      - arginine synthesis, E437
      - phosphate-dependent glutaminase activity, F961
    - cortical collecting
      - aldosterone effects on sodium-potassium pump, F40
      - apical membrane, regulation of potassium channel in, F494
    - distal
      - depressed acidification, chloride-deplete alkalosis and, F636
      - development, oxytocin receptors during, F872
    - distal convoluted, PTH, calcitonin, and cAMP effects on calcium transport, F408
    - fluorescent indicators, chloride-sensitive, C375
    - function, captopril and ibuprofen interaction in, F233
    - inner medullary collecting, vasopressin signaling in, C693
  - innervation, monoaminergic, F503
  - medullary, phosphate-dependent glutaminase activity, F961
  - necrosis, neutral amino acid protection, F80
  - proximal
    - ammonia appearance, luminal ammoniagenesis effects, F402
    - ammonia pathways in apical and basolateral membrane, F587
    - autoregulation, models, F715
    - basolateral membrane reflection coefficients, F594
    - basolateral plasma membrane, bilitranslocase localization in, F559
    - bicarbonate absorption, calcium effects, F451
    - bulk isolation of, F164, F176
    - dihydropyridine-sensitive cell volume regulation, F950
    - glucose, growth, and collagen synthesis in, F705
    - glutamate dehydrogenase in, F53
    - microfilaments in structural and functional integrity, F279
    - proliferation and glucose metabolism relations, C455
    - sodium-potassium-ATPase-mediated rubidium influx, F111
    - sodium-potassium-ATPase activity, F924
    - transepithelial acidification, C103
  - proximal cells, 12-HETE modulates sodium-coupled uptake in, F816
  - proximal convoluted
    - angiotensin II role in glomerulotubular balance, F72
    - dopamine receptor-adenylate cyclase coupling in, F971
    - sodium-potassium-ATPase, sodium affinity of, F246
  - proximal straight, glucose absorption by, F580
  - water channels, endocytosis in, C920
  - Kupffer cells
    - phagocytosis by, pericentral regions of liver lobule, G814
    - superoxide anion generation, liver, G907
- L
- Laboratory
    - cardiovascular physiology, videodisc instruction vs. live animals, S11
    - student, hands-on experience, S4
  - Lacrimal gland
    - inositol tetrakisphosphate production, G274
    - inositol trisphosphate isomer production, G274
  - Lactate
    - ammonia flux, exercise and recovery, E170
    - cell, cardiac tissue, anoxia effects (turtle), R15
    - formation, from glucose, E397
    - hepatic nerves, exercise and, E195
    - metabolism, liver and skeletal muscle in, E677
    - oxidation, phenylephrine actions and, hepatocytes (teleost), E644
    - production
      - adipocyte, refeeding after fasting, E865
      - diaphragm, high-intensity exercise, H1185
    - spermatid energy metabolism, C660
    - striatum extracellular, exercise and stress effects, R773
  - Lactate dehydrogenase
    - mechanism of cytoprotection, kidney, F80
    - release, acrolein effects, airway epithelial cells (bovine), L222
  - Lactation: *see also* Fetus; Placenta; Pregnancy
    - calcium and phosphorus absorption, vitamin D-independent, intestine, G631
    - insulin secretion, maternal diet effects, E568
    - insulin sensitivity during, mammary gland, E828
    - protein and calcium homeostasis, PTH-related, E792
    - regulation of 1,25-dihydroxyvitamin D<sub>3</sub> in, E665
  - Lactic acid, release, myocardial, hypoxia (seal, pig), R849
  - Lactotropes, single male, calcium channels and basal prolactin secretion, C949
  - Lamellar bodies, radiolabeled, alveolar compartment, L238
  - Laminin, extracellular matrix receptors, kidney cortex, F783
  - Lanthanum
    - blockage, calcium currents, pituitary cells, C515
    - calcium displaceable by, ventricular cells, H592
    - cell volume regulation, proximal tubule, F950
    - specific component of potassium current, cardiac cells, H1881
  - Latissimus dorsi, anterior, fiber formation and hypertrophy, C92
  - Lead, fura-2 fluorescence in presence of, chromaffin cells, C762
  - Leucine
    - balance studies, splanchnic region role in, E36
    - <sup>13</sup>C-labeled, measurement of albumin synthesis, E797
    - deamination and decarboxylation, fetoplacental, E492
    - metabolism
      - insulin effects, type 1 diabetes, E96
      - insulin-induced hypoglycemia effects, E342
      - splanchnic region role in, E36
    - nitrogen sparing of, parenteral feeding, E633
    - oxidation, glucagon-induced, bradykinin effects, E239
    - protein synthesis, muscle, exercise and recovery effects, E470
    - sodium-coupled transport, urinary bladder (crustacean), R147
    - tracer kinetics, starvation effects, muscle, E477
    - uptake, euglycemic hyperinsulinemia effects, leg tissue, E185
  - Leukocyte-endothelial cells, interactions, mesenteric venules, ethanol effects, G578
  - Leukocyte factor, coronary constriction to serotonin and, H1161
  - Leukocytes
    - adherence
      - ischemia/reperfusion-induced, PAF role in, G300

- Leukocytes (continued)**  
 PAF-induced, increased microvascular permeability and, G859  
 elastase inhibitors, neutrophil-mediated vascular leakage, H1288  
 infiltration, reperfusion-induced, elastase role in, H390  
 polymorphonuclear, acid aspiration edema, phalloidin and, L378  
 repletion, thrombin-induced increase in vascular permeability, lung, H149  
 sequestration, postischemic skeletal muscle, H525
- Leukotrienes**  
 coronary constriction to serotonin and, H1161  
 cysteinyl, growth and, airway epithelial cells, L255  
 low concentrations, positive inotropic effects, heart, H1239  
 neutrophil adhesion and, mesangial cells, F809  
 nonsteroidal anti-inflammatory drugs, gastric ulceration induced by, G462  
 receptor: *see* Receptors  
 vasoconstriction, leukotriene receptor antagonist effects, G147
- Leukotriene B<sub>4</sub>**  
 acid aspiration edema, phalloidin and, L378  
 cellular production, airway response in asthma and (sheep), L136
- Leukotriene C<sub>4</sub>**, hemodynamic effects, fetus (sheep), E851
- Leukotriene D<sub>4</sub>**, excitation, distal colon, G753
- Lidocaine**  
 basolateral potassium channels, aldosterone regulation of, alveolar epithelium (frog), L230  
 coronary constrictor pathway, H917  
 linear regression, noisy data, H1305
- Linoleic acid**, absorption and metabolism, essential fatty acid deficiency, G116
- Lipids**  
 absorption, intestinal, G386  
 accumulation, feeding effects, gastric antrum, G998  
 acetylated, biologically active cellular mediator, C697  
 binding, gastric mucin, G681  
 composition  
   membrane, malnutrition and, G940  
   streptozotocin diabetes, intestine, G571  
 corn oil preference, sham-feeding, obesity and, R1093  
 intraduodenal infusion, satiety and, R110  
 metabolism, insulin effects, E736  
 order, MDCK cells, ADH effects, F95  
 peroxidized, subcellular distribution, myocardium, H116
- Lipocortin**, response to cytokines and, R266
- Lipolysis**  
 hypoglycemia effects, E542  
 ketone body production rates and, systemic pH effects, E327  
 prolonged fast (hamster), E80  
 triglyceride production, hepatic, diet effects, E177
- Lipopolysaccharides**  
 L-arginine pathway, endotoxemia, H1038  
 fever-inducing doses of, plasma profiles of interleukin 6 and TNF, R126  
 superoxide anion generation, liver, G907  
 tonometric measurement, intestine (pig), G519
- Lipoproteins**  
 high-density, hepatic, bile salt effects, G205  
 very-low-density  
   intestinal transport, G709  
   small intestine, G386
- Liposomes**, fluorescent indicators, chloride-sensitive, C375
- Lipostatic factor**, putative, site of action, R45
- Lipoxygenase**  
 metabolism, late airway response in asthma and (sheep), L136  
 pathway, inhibition, blood pressure and, renovascular hypertension, H1774  
 release, acrolein effects, airway epithelial cells (bovine), L222
- 15-Lipoxygenase**, product of arachidonate, transformed erythroid cells, C849
- Lithium**  
 clearance, glomerular and tubular function, F233  
 secretagogue agent, C527
- Liver**  
 aging effects, insulin receptor kinase, E27  
 alanine and lactate metabolism, E677  
 amino acid transport, different protein diet effects, E614  
 arachidonic and linoleic acid absorption, fatty acid deficiency and, G116  
 basolateral membrane, biotin transport, G865  
 basolateral plasma membrane vesicles, sodium-hydrogen exchange, neonate, G334  
 bicarbonate-rich cholestasis, cholate-induced, amiloride and taurine inhibition of, G453  
 blood flow: *see* Blood flow  
 copper transport in, albumin and histidine effects, G212  
 cyst(e)ine metabolism, bathocuproine disulfonate and, hepatocytes, E443  
 denervation methods, evaluation of, G781  
 developing  
   asialoglycoprotein processing, microfilament role in, G639  
   transforming growth factor- $\alpha$  in, E256  
 glucose production  
   insulin-like growth factor I and, E561  
   muscular work effects, E195  
 glucose transporter, hepatocytes, intestine, and kidney cells, C279  
 glycogen metabolism, food deprivation effects, E692  
 glycogen repletion  
   fasted-refed transition, E513  
   fed and fasted humans, E335  
 high-density lipoproteins, bile salt effects, G205  
 HRP excretion, DBcAMP stimulation of, G727  
 iron uptake, cellular iron concentration effects, G611  
 lobule, phagocytosis by Kupffer cells, G814  
 lymph flow, outflow pressure effects (sheep), R780  
 membrane vesicles, methylnicotinamide transport by organic cation-proton exchange, G973  
 mitochondrial fatty acid oxidation, endotoxic rats, E498  
 oral galactose metabolism, fasting, E804  
 perfusate, distribution space in, G32  
 portacaval shunting, cerebral dysfunction and, E104  
 postprandial bile flow, fasting effects, awake state (opossum), G745  
 protein metabolism  
   after injury with turpentine, model, E763  
   insulin-induced hypoglycemia effects, E342  
 regenerating, gene expression during, G340  
 superoxide anion generation by, G907  
 synthesis, female protein (Armenian hamster), R341  
 triglyceride production, diet effects, E177
- LLC-PK<sub>1</sub>** cells  
 confluent, putrescine metabolism in, C84  
 nonmetabolizable glucose analogues, ornithine decarboxylase expression and, C647
- Locomotion**, muscle performance and, temperature change effects, R189
- Locomotor capacity**, thermal dependence of (reptile, amphibian), R253
- LTB<sub>4</sub>**: *see* Leukotriene B<sub>4</sub>
- LTC**: *see* Leukotriene
- Lung**  
 airway epithelium, mechanical removal, mast cells and granules in (ferret), L372  
 arachidonic and linoleic acid absorption, fatty acid deficiency and, G116  
 development, transforming growth factor- $\alpha$  in, E256  
 elastin synthesis, regulation of, L13  
 epithelial cells  
   calcium ionophores and phospholipase activity, L439  
   developmental differences in sodium-potassium-ATPase, L481  
   neonate, L415  
 epithelium, arachidonate metabolism, L73  
 hormonally regulated proteins, fetus, L283  
 hormone and butyrate regulation, surfactant protein A mRNA, fetus, L488  
 inflation, PEEP effects, H697  
 injury  
   hypoxia and reoxygenation effects, H518  
   oxidant-mediated, U74500A inhibition, H144  
   reperfusion-induced, antibody against integrin and, L315  
   short-term hyperoxia, L451  
   xanthine, VIP effects, L151  
 ion transport, epithelial, perinatal period, L30  
 liquid, endocrine and fluid-balance responses to loss (sheep), R745  
 maturation, fetus, regulation of, L337  
 peptidoleukotrienes, vasoconstriction and, H751  
 peripheral strip contraction, PAF and, species differences, L81  
 polyamine accumulation, hypoxic pulmonary hypertension, L351



- regional type II cell development, fetus and neonate, L359  
 surfactant proteins, analysis of gene expression, L185  
 surfactant: *see* Surfactant  
 vascular permeability, thrombin-induced, leukocyte repletion, H149  
 vasodilation, endothelin 1 and, H48  
 Lung cells, perinatal, prostaglandin synthesis, hyperoxia effects, L95  
 Luteinizing hormones, response, feeding, peripubertal feeding, R25  
 Lymphatics, ANP effects (cow), H42  
 Lymph flow  
   changes in, hyaluronan, H1097  
   chronic, angiotensin II hypertension and, R1205  
   formation, skeletal muscle fibers, H1860  
   liver, outflow pressure effects (sheep), R780  
 Lymphocytes, hemorrhage, resuscitation and, R663  
 Lymphoma, S49, adrenoceptor metabolism, S49 cells, C41  
 Lymph vessels  
   ANP effects (cow), H42  
   volumes, skeletal muscle fiber deformation, H1860  
 Lysine, transport, brush-border membrane vesicles, intestine (eel), R1181
- M**
- Macrophages  
   alveolar  
     hyperoxia, protection by  $\gamma$ -glutamyl transpeptidase, L102  
     phagocytic functions of, hydrogen peroxide effects, L87  
     protooncogene expression, colony-stimulating factor effects, L144  
     urokinase receptors, enzyme activity and, L432  
   hemorrhage, resuscitation and, R663  
   injury, TNF-induced, cycloheximide effects, L123  
   production, TNF and PGE<sub>2</sub>, virus-induced alterations in, L396  
   pulmonary, ATP dependence of cytoplasmic pH, C586  
 Macula densa  
   long-term arterial pressure control, computer and graphic models, R865  
   stimulus, renin secretion, F186  
   tubuloglomerular feedback interactions kidney, F60  
   spontaneous hypertension, F529  
 Magnesium  
   absorption, calcium comparison, intestine, G720  
   extracellular, T- and L-type calcium currents, atrial myocytes, H1842  
   influx pathway, MDCK cells, C521  
   sodium efflux dependent on, giant axons (squid), C541  
 Magnetic resonance imaging, cytosolic free calcium ions, HL-60 cells, C687  
 Malnutrition, glucose transport and, microvillus membrane, G940  
 Malonyl-CoA, exercise-induced decline in, different muscle types, E266  
 Mammary gland, lactation, insulin sensitivity during, E828  
 Mannitol, paracellular absorption, intestinal, body size relations, G290
- Manometry, upper esophageal sphincter, determinants of pressure, G245  
 Mast cells  
   airway epithelium removal effects (ferret), L372  
   deficiency, impaired gastric acid secretion in, G41  
 Maturation: *see also* Development; Growth  
   acetylcholinesterase expression, tracheal smooth muscle contraction, L130  
   bicarbonate transport, collecting duct, F801  
   juvenile to early adult, intestinal microvasculature, G282  
   lung  
     fetus, regulation of, L337  
     sodium-potassium-ATPase, L481  
     reticulocyte, decrease in sodium-potassium-ATPase and (sheep), C241  
 MDCK cells  
   cytosolic free calcium ions, sodium ions, and pH, low extracellular calcium ion effects, C19  
   lipid order in, ADH effects, F95  
   magnesium influx pathway, C521  
   osmolytes, modulation by solutes, inhibitors, and vasopressin, F653  
   resistance and tight junctions in, blood factor effects, C577  
 MDCK-D1 cells, arachidonic acid release, elevated extracellular potassium effects, C224  
 Mechanoenergetics, simulation, asynchronously contracting ventricle, R1075  
 Median preoptic nucleus, osmoresponsive units in (sheep), R593  
 Medulla oblongata, interstitial solute dispersion, microvascular specializations, R1131  
 $\alpha$ -Melanocyte-stimulating hormone, endotoxin and, R768  
 Membrane  
   apical  
     chloride channels, airway epithelia, C295  
     cortical collecting tubule, regulation of potassium channel in, F494  
     forskolin-induced bicarbonate current, corneal epithelium (frog), C215  
     gallbladder, blocker effects on potassium channels, C56  
     hydrogen ion extrusion mechanisms in, F628  
     pathway for ammonia, proximal tubule, F587  
   basement  
     lung, fibrosis, L159  
     procollagen IV and laminin mRNA in pulmonary fibrosis, L47  
   basolateral  
     airway, sodium-potassium-chloride co-transport, C557  
     biotin transport, liver, G865  
     chloride channel in, kidney collecting duct, F46  
     hydrogen ion extrusion mechanisms in, F628  
     pathway for ammonia, proximal tubule, F587  
     potassium conductance, C181  
     proximal tubules, bilitranslocase localization in, F559  
     reflection coefficients, F594  
     renal vesicles, acidification mechanisms, F458
- sodium-hydrogen antiporter, localization of, kidney, F512  
 sodium-hydrogen exchanger in, ileum, G802  
 sulfate and oxalate exchange for bicarbonate, ileum, G807  
 microvillus, glucose transport, malnutrition effects, G940  
 opercular, cortisol stimulation of chloride cells (tilapia), R857  
 plasma  
   ileal, taurocholate binding sites in, G394  
   lipid order, ADH effects, MDCK cells, F95  
   placenta, anionic amino acid transport systems, C47  
 Menadione, oxidative stress, kidney cells, F338  
 Mesangial cells  
   ANF receptors, F619  
   interleukin 1 $\beta$ -induced growth, cyclooxygenase inhibition of, F419  
   neutrophil adhesion to, leukotriene stimulation of, F809  
   pH, calcium ions, and proliferation, mitogen effects, F269  
 Mesenteric artery  
   occlusion, gut intramural pH during (pig), G519  
   superior, hypoxia-induced vasodilation in, G605  
   tension, hypoxia effects, H281  
 Mesenteric ganglion, inferior, colonic volume and synaptic input to (guinea pig), G490  
 Mesenteric veins, norepinephrine sensitivity, pregnancy, R753  
 Mesenteric venules, leukocyte-endothelial cell interactions, ethanol effects, G578  
 Metabolic rate  
   aging and endurance training effects, healthy men, E66  
   basal, body composition and energy expenditure (bird), R333  
   bicarbonate washout kinetics and, R163  
   resting  
     body composition and, aging effects, E233  
     temperature regulation in air and water (coyupus), R1220  
 Metergoline, anorectic responses, amino acid imbalance, R627  
 Methazolamide, bicarbonate current, apical membrane, corneal epithelium (frog), C215  
 Methimazole, inhibition, thyroid metabolism, E529  
 6-Methoxy-N-(3-sulfopropyl)quinolium, development and biological applications, C375  
 $\alpha$ -(Methylamino)isobutyric acid, membrane transport, different protein diet effects, liver, E614  
 N-Methyl-D-aspartate, excitatory, medial nucleus tractus solitarius, H1307  
 Methylene blue, ANP effects, lymphatics (cow), H42  
 3-O-Methylglucose, transporter expression, endurance training effects, E778  
 3-O-Methyl-D-glucose, transport, ATP-depleted enterocytes (chick), G775  
 3-Methylhistidine, muscle, exercise and recovery effects, E470

# SUBJECT INDEX TO VOLUME 259

- N<sup>1</sup>-Methylnicotinamide**, transport, organic cation-proton exchange, liver membrane vesicles, G973
- Microcatheterization**, ANF effects, collecting duct function, F415
- Microcirculation**: *see also* Blood flow; Circulation
- active constriction of venules, sympathetic activity and, intestine, H674
  - $\alpha$ -adrenoceptors, myogenic interaction, microvascular smooth muscle, H1126
  - altered regulation, transplanted pancreatic islets, E52
  - ANP effects, forearm, H258
  - arteriolar oxygen transport and, striated muscle, H1694
  - arterioles, intramural diffusion barrier effects, H574
  - brain, endothelium-dependent L-arginine, H1396
  - cerebral
    - cytochrome P-450 metabolites of arachidonic acid, H1171
    - oxygen radical effects, H497
    - resistance in, H243
  - coronary, coronary artery occlusion effects, H909
  - intestinal, PAF-induced microvascular permeability, G859
  - isolated arterioles, rate-sensitive mechanism, H1890
  - lymph flow, hypertension and, R1205
  - muscle, during hemorrhage, laser-Doppler flowmetry, H860
  - neutrophil-mediated vascular leakage, elastase and, H1288
  - prostaglandin effects, during sepsis, H728
  - reactive dilation, skeletal muscle arterioles, H1313
  - spinal, neuropeptide Y effects, H1674
- Microelectrode study**, bicarbonate current, apical membrane, corneal epithelium (frog), C215
- Microfilaments**
- asialoglycoprotein processing and, developing liver, G639
  - structural and functional integrity of proximal tubules, F279
- Microperfusion**, inner medullary collecting duct, F222
- Microprobe**, scanning ion, calcium labeling in, bone, E586
- Microscopy**
- digital-imaging, chloride permeability, sweat duct cells, C842
  - electron, heme-octapeptide-labeled fibrinogen, C611
  - fluorescence
    - calcium, vascular smooth muscle cells, C675
    - chloride content, salivary acinar cells, C998
    - complementation of cystic fibrosis cells, C1010
  - light, monoaminergic innervation, kidney, F503
- Microspheres**
- radiolabeled
    - adrenal oxygen consumption, catecholamine secretion effects, H681
    - bile acid effects on hyperdynamic circulation, G21
    - collateral blood flow, H560
    - coronary flow measurement, H635
    - leukotriene C<sub>4</sub> effects, fetus (sheep), E851
- Microsurgery**, denervation methods, liver, G781
- Microvascular endothelium**, permeability, charge effects on, H162
- Microvascular function**, spatial heterogeneity in, H124
- Microvascular injury**, ischemia/reperfusion induced, model, G134
- Micturition**, diuresis and, renal pelvic pressure, R637
- Migrating motor complex**
- biliary tract, fasting effects (opossum), G745
  - enteric, sleep cycle relations, G983
  - interdigestive, duodenal cross-sectional area during, G26
  - intestinal, fasted state, *T. spiralis* effects, G693
  - investigation of (turkey), G329
- Mineralization**
- bone
    - 1,25-dihydroxyvitamin D<sub>3</sub> infusion, E715
    - scanning ion microprobe, E586
- Mineralocorticoids**
- binding sites, development of hypertension and, R1025
  - escape, sodium chloride concentration, brain, F839
  - hypertension, ANP receptors in renal papilla, F130
  - sodium-chloride absorption sensitive to, cortical collecting duct, F519
- Minerals**, metabolism, vitamin D<sub>3</sub> response to, E319
- Mitochondrial**, biogenesis, 5'-aminolevulinic synthase activity and, C310
- Mitogenesis**, mesangial cell, ANF inhibition of, E312
- Mitogens**
- for type II cells, derived from lung fibroblasts, L247
  - pH, calcium ions, and proliferation with, mesangial cells, F269
- Models**
- blood-tissue exchange, capillary adenosine transport (guinea pig, rat), H772
  - calcium channel blockade, pH-dependent, nifedipine, H1178
  - calcium uptake, vascular smooth muscle, R172
  - clinical trauma, protein metabolism after turpentine injury, E763
  - clip, differential transport, volume expansion, F480
  - computer and graphic, long-term arterial pressure control, R865
  - convection-diffusion, inert gas transport in myocardium, H167
  - deterministic, defibrillation, H1544
  - gallbladder contraction, stimulation by substance K, G838
  - ion channels, blockade, H626
  - latch-bridge, smooth muscle (swine), C251
  - mammillary, metabolic rate and bicarbonate kinetics, R163
  - mathematical
    - atrial cell action potential (bullfrog), H370
    - cardiac pacemaker cell (bullfrog), H352
- intra- and extracellular oxygen pressure gradients**, working muscle, H84
- mechanoelectricity**, asynchronously contracting ventricle, R1075
- microvascular injury**, ischemia/reperfusion-induced, G134
- obesity-induced hypertension**, baroreflex sensitivity in, R981
- septic shock**, antibiotics versus cardiovascular support, H1440
- spontaneous obesity**, aging males, R1117
- theoretical**, ventricular interdependence, H181
- tricarboxylic acid cycle**, heart, H987
- tubuloglomerular feedback**, renal autoregulation, F715
- Monoaminergic innervation**, kidney, F503
- Monoamines**, cerebral dysfunction and, after portacaval shunting, E104
- Monocytes**, calcium, heat-shock response and, C77
- Monosaccharide**, transporter development, intestine, G544
- Monosodium glutamate**, 5'-nucleotides and, synergism, taste nerve responses, R420
- Morphine**, central angiotensin system, hypertonic resuscitation from hemorrhage and, H1752
- Motility**
- duodenal, fluid transport relations, G348
  - gastric
    - glucoprivation effects, R447
    - TRH analogue and bicuculline effects, G321
  - gastroduodenal, denervation of myenteric plexus (turkey), G481
  - gastrointestinal
    - acids and, G1025
    - erythromycin and, G355
    - ouabain and, colonic myocytes, C402
    - pacemaker activity in septal structures, G264
    - propagation of slow waves, colon, G258
    - sodium oleate and, G1031
    - sphincter of Oddi, time-series analysis, G511
  - ileal, postprandial, regulation of, G767
  - intestinal
    - fasted state, *T. spiralis* effects, G693
    - secretory diarrhea, G420
    - worm-free gut regions of *Trichinella* infection, G306
  - measurement of gallbladder tone changes, electronic pneumatic barostat, G314
  - pyloric, CNS vagus control of pressure, G899
  - small bowel, enteric neural dysfunctioning, G226
  - small intestinal, regulation of, G928
- MRI**: *see* Nuclear magnetic resonance
- $\alpha$ -MSH**: *see*  $\alpha$ -Melanocyte-stimulating hormone
- Mucin**
- acidic layer, micell dissociation and fatty acid diffusion, G671
  - gastric, lipid binding to, G681
  - granule transport, intestinal goblet cells, G991
- Mucociliary cells**, plasticity in, airway epithelium, L38
- Mucus**, secretion, neural control of, airway (guinea pig), L108

Muscle

- blood flow: *see* Blood flow
  - circular
    - contraction, regulation, G767
    - pacemaker activity in, G264
    - propagation of slow waves, colon, G258
    - voltage-dependent currents in, ouabain effects, C402
  - contractile frequency, deactivation rate and, R223
  - contractile properties, thermal acclimation and (fish), R231
  - contraction
    - discharge patterns, ventrolateral medullary neurons, R606
    - temperature change effects, R197
  - different types, exercise-induced decline, malonyl-CoA effects, E266
  - enhanced glucose transport, after exercise, E685
  - enzymes, neutrophils and, acute phase response in exercise, R1214
  - function, temperature effects, R259
  - gene expression, 5'-aminolevulinate synthase activity and, C310
  - glucocorticoids, myofibrillar proteolysis to, E699
  - hypertrophy, insulin-like growth factor and, 89
  - insulin receptor kinase activation, high-fat-sucrose diet effects, E111
  - insulin sensitivity, testosterone effects, E555
  - isometric contraction, reflex responses of renal nerve activity, H1380
  - lactate formation from glucose, E397
  - longitudinal, leukotriene D<sub>4</sub> excitation of, G753
  - microsamples of mitochondria, ATP production in, E204
  - overload, fiber formation and hypertrophy, C92
  - peak oxygen consumption, respiratory capacity effects, C889
  - performance, temperature changes and, R189
  - pH, temperature and, R204
  - prolonged exercise, tricarboxylic acid cycle in, C834
  - protein metabolism
    - after injury with turpentine, model, E763
    - starvation effects, insulin response and, E477
  - protein synthesis, exercise and recovery effects, E470
  - recruitment, temperature change effects, R210
  - respiratory, high-intestine exercise, ammonia or lactate production during, H1185
  - sodium-potassium pump, growth hormone and thyroxine effects, E278
  - striated
    - arteriolar oxygen transport, hemoconcentration effects, H1694
    - spatial heterogeneity in microvascular function, H124
    - temperature acclimation, metabolic response to (fish), R245
    - working, intra- and extracellular oxygen pressure gradients, H84
- Muscle, heart
- barium-induced contracture, metabolism during, H1566

- changes, long-term pressure overload, H849
  - contractility
    - during respiratory acidosis (ferret), H843
    - neuropeptide receptors and, H174
  - contracting, thermopile records from, H1601
  - contraction and calcium content, sarcoplasmic reticulum (guinea pig), H1222
  - excitability, rate dependence of (guinea pig), H290
  - hypoxia, reoxygenation and, H784
  - skinned
    - inhibitory influences of phosphate and arsenate, C933
    - unloaded shortening velocity, H1118
  - skinned fibers, caffeine effects (ferret), H1803
  - ventricular, intracellular pH, myocardial ischemia, C169
- Muscle, skeletal
- aging effects, insulin receptor kinase, E27
  - alanine and lactate metabolism, E677
  - arterioles, endothelium in reactive dilation, H1313
  - autoradiographic delineation,  $\alpha_1$ -adrenergic receptor distribution, H1402
  - contractile properties, thermal acclimation and (fish), R231
  - contraction
    - halothane sensitivity (pig), R133
    - temperature change effects, R197
  - denervated
    - functional properties of skinned muscle fibers, C503
    - glutamine transport and metabolism, E148
  - dysfunction, neutrophil effects, after ischemia-reperfusion, H1809
  - elastic filament, C144
  - fiber deformation, lymphatic volumes, H1860
  - gluconeogenic precursors in, fasted-refed transition, E513
  - glucose transport capacity, endurance training effects, E778
  - glucose uptake, cold effects, R1043
  - growth, work-induced, insulin-like growth factor and, E89
  - hydrolysis, peptides, E463
  - IMP formation and glycolysis, ATP turnover effects, C409
  - insulin binding, E517
  - membrane, contraction, sulfhydryls and (frog), C709
  - microvascular response, fixed volume hemorrhage, H190
  - myosin phosphorylation, temperature effects, C432
  - overloaded, 5'-aminolevulinate synthase activity and, C310
  - oxygenation state, prediction by glutamate dehydrogenase, C26
  - phosphate effects, depression of force (frog), C349
  - postischemic, complement activation and white cell sequestration in, H525
  - protein metabolism, insulin-induced hypoglycemia effects, E342
  - sarcomer:mal vesicles, glutamine transport in, E284

- skinned, inhibitory influences of phosphate and arsenate, C933
  - vasodilation, nicotine-induced, epinephrine release effects, H1718
- Muscle, smooth
- airway
    - epithelium-dependent contraction, eosinophil MBP and, L294
    - histamine stimulation of *c-fos* expression, L365
    - mechanical removal of epithelium, mast cells and (ferret), L372
    - muscarinic receptors, L304
  - arterial
    - <sup>32</sup>P-labeled, protein kinase C and myosin light chain in, C631
    - tone, calcium and potassium channels and voltage dependence of, C3
  - colonic, slow waves, propagation of, G258
  - coronary, calcium release, exercise effects (pig), H643
  - electrical properties, renal pelvis, F888
  - function, worm-free gut regions of *Trin-chinella* infection, G306
  - gallbladder, contraction, intracellular calcium and, G1
  - growth, uterine arteries during pregnancy, C484
  - ileal, substance P effects on calcium and force (guinea pig), C150
  - intestinal, substance P effects on calcium and force (guinea pig), C150
  - jejunal, contraction, food protein-induced, G6
  - latch-bridge model in (swine), C251
  - lower esophageal sphincter, VIP-induced alterations in cAMP, G239
  - microvascular, myogenic regulation of,  $\alpha$ -adrenoceptors with, H1126
  - myosin light chain phosphorylation, alteration by phorbol ester, C769
  - pyloric, excitatory and inhibitory neural regulation of, G125
  - spastic coronary artery, hypercontractility to histamine, H9
  - stomach, LTC<sub>4</sub> vasoaction in, G147
  - stomach and gallbladder, CCK and gastric receptor effects, G184
  - tracheal
    - increased myosin phosphorylation in, L53
    - maturation of acetylcholinesterase expression, L130
    - substance P contraction (cattle), C258
  - vascular
    - adenosine response, ontogeny of (guinea pig), H1637
    - L-arginine-dependent, H1813
    - calcium uptake, compartmental analysis, R172
    - cellular and molecular aspects, introduction, H1
    - fatty acid metabolism, H442
    - guanylate cyclase, activation by interleukin 1 and endotoxin, R38
    - myofilament calcium sensitivity, H2
    - norepinephrine sensitivity and transmural pressure, H29
    - pH control in, C134
    - pinacidil effects on ion permeability, H14
    - protein kinase C involvement, H1586
    - rate-sensitive mechanism, H1890
    - relaxation mediated by adenosine, H62

- Muscle, smooth (*continued*)  
sodium gradient effects on calcium transients, H409
- Muscle cells  
cardiac, differentiated, proliferating, H1826  
contraction, peptide modulators of myosin light chain kinase and, C315  
smooth  
airway, potassium currents in, L384  
contraction, PAF and, lung, L81  
endothelin release, inhibition of, H1928  
membrane, electrical properties, renal pelvis, F888  
neutrophil adhesion, leukotriene effects, F809  
stomach,  $\beta$ -adrenoceptors in (guinea pig), G436  
stomach and gallbladder, CCK and gastric receptor effects, G184  
vascular smooth  
energy dependence of sodium-calcium exchange, C302  
pH response to AVP, C471  
spatial dynamics of intracellular calcium, C675
- Muscle fibers  
autoradiographic delineation,  $\alpha_1$ -adrenoreceptor distribution, H1402  
elastic filament, C144  
formation, hypertrophy and, C92  
functional properties of, denervated skeletal muscle, C503  
gastrocnemius, enzymatic plasticity of, spinal transection, C507  
single, sarcomere dynamics (frog), C266  
skeletal, phosphate effects on depression of force (frog), C349  
skinned  
acidosis effects, hypertrophied heart, H1044  
caffeine effects, heart (ferret), H1803  
twitch and tonic, calcium sensitivity and acetylcholine receptor currents (snake), C911  
type  
glucose transporter content, E593  
insulin binding, E517  
temperature effects, R210
- Muscularis mucosae, distal colon, leukotriene D<sub>4</sub> excitation of, G753
- Myeloperoxidase  
activity, reperfusion-induced lung injury and, L315  
postischemia, skeletal muscle, H525
- Myenteric plexus  
acetylcholine release, stimulation by calcitonin gene-related peptide, G934  
denervation of, gastroduodenal motility and (turkey), G481  
motor activity, neural control of, G593
- Myocardium  
adaptation, high altitude, H1667  
barium-induced contracture, metabolism during, H1566  
contractility, vasopressin actions and endocardium, H1148  
coronary constrictor pathway, H917  
dysfunction  
*E. coli* endotoxemia, H504  
ventricular remodeling in aging, H1086  
early reperfusion, substrate preference for oxidative metabolism during, H317  
electrophysiological effects, VIP, H1559  
energy metabolism, reactive hyperemia, H1190  
fiber strain, blood flow and, asynchronous activation, H300  
glucose metabolism, 2-FDG analysis of, H1022  
hypoxia, reoxygenation and, H784  
inert gas transport, H167  
ischemia: *see* Ischemia  
left ventricular, transmural hematocrit gradient, H403  
metabolism, tricarboxylic acid cycle, model, H987  
microvessels, aging, late-onset hypertension, H1681  
neuropeptide, blood flow rate and, H1709  
oxygen consumption, during isoproterenol, H346  
protection, inhibition of protein synthesis and, H1822  
reperfusion  
pacing during, oxygen consumption and, H872  
subcellular distribution of peroxidized lipids, H116  
sarcolemma, calcium transport (trout), R453  
skinned, unloaded shortening velocity, H1118  
sodium-hydrogen exchange, C940  
stunning  
iron-mediated radical reactions, H1901  
myofibrillar function and, H813  
superoxide dismutase and catalase effects, H889  
ventricular, negative inotropy, anesthetic effects (ferret), H827
- Myocytes: *see also* Cardiomyocytes  
 $\beta$ -agonist sensitivity in, failing heart, H1009  
ATP-depleted, reduced arachidonate metabolism in, H582  
atrial  
acetylcholine-sensitive potassium channels, H1730  
magnesium effects on T- and L-type calcium currents, H1842  
calcium waves in, H940  
cardiac pacemaker cell, model (bullfrog), H352  
colonic, voltage-dependent currents in, ouabain effects, C402  
cooled, sodium channels in, C599  
embryonic, calcium channels in (chick), H639  
G protein expression in, potassium chloride depolarization and, H432  
growth and protein synthesis, angiotensin II stimulation of, H610  
high-energy phosphates, intracellular calcium and, H1851  
hypoxic, calcium content, hypothermia effects, H333  
injury, TNF-induced, cycloheximide effects, L123  
lethal injury, selective turnover of sarcolemmal phospholipids, C325  
membrane-delimited stimulation, calcium current, H264  
sarcolemmal, contraction and sarcolemmal reticulum calcium content (guinea pig), H1222  
sodium-calcium exchange, G56  
sodium-potassium pump, dependence on sodium, H488  
specific component of potassium current, lanthanum block of, H1881  
structure and function, cardiomyopathic heart (hamster), H1533  
transmembrane potential of, modulation by insulin and isoproterenol, H554  
ventricular  
calcium exchange, H592  
calibration of fura-2, H973  
furosemide-dependent potassium fluxes, H962  
G protein modulation of calcium channels, H820  
permeability of, potassium channel (guinea pig), H1448  
rest decay of calcium transients and contractility, H395
- Myoelectric activity  
intestinal, regulation of, G928  
measurement of gallbladder tone changes, electronic pneumatic barostat, G314
- Myoelectric complex, migrating, enteric neural defunctioning, G226
- Myoelectric cycling, sphincter of Oddi, time-series analysis, G511
- Myogenicity, autoregulation, during vasoconstrictor infusion, H1270
- Myogenic response  
arteriolar, protein kinase C involvement, H1586  
isolated arterioles, rate-sensitive mechanism, H1890  
saline, resistance artery and small vein, H23
- Myoglobin, ferrylmyoglobin, reduction, diaphragm, C995
- Myometrium, phosphoinositide hydrolysis, G protein coupling to, pregnancy effects (guinea pig), E57
- Myosin  
isoforms, muscle, neonate, L116  
phosphorylation, tracheal smooth muscle, L53
- Myosin isoenzymes, sex hormones and, cardiac hypertrophy, H866
- Myosin light chain kinase  
activation, substance P contraction of tracheal smooth muscle (cattle), C258  
peptide modulators of, smooth muscle cell contraction and, C315  
phosphorylatable, temperature effects, skeletal muscle, C432  
phosphorylation  
<sup>32</sup>P-labeled arterial smooth muscle, C631  
protein content and, uterine arteries in pregnancy, C484  
smooth muscle, alteration by phorbol ester, C769
- Myxothiazol, inhibition of respiratory capacity, muscle peak oxygen consumption, C889
- N
- Naloxone  
anesthesia, adrenal and renal nerve activity during hemorrhage, H1134  
blockade, during cardiac tamponade, awake state, H512  
*E. coli* endotoxemia, left ventricular, H504



- renin and pressor responses, acute renal hypotension, E432
- Naphthalenesulphonamide compounds, calmodulin, insulin secretion and, E856
- Natriuresis
- ANF release and, high-output heart failure, H1374
  - control,  $\alpha_2$ -adrenoceptors and, F1
  - differential transport, clip models of, F480
  - dopamine-2 mechanisms and, F793
  - pressure
    - arterial pressure after barodenervation, R1172
    - hypertension with angiotensin II, R1012
    - neurogenic control of, awake state, F466
  - renal and cardiovascular function, modification of, men, F832
  - serotonin effects, kidney, R1267
- Nausea, erythromycin and, G355
- Neomycin, ANP secretion, quiescent atria, C801
- Neonate: *see also* Newborn
- core temperature, circadian cycle of, R270
  - development
    - glucose homeostasis during, E601
    - transforming growth factor- $\alpha$  in, E256
  - epithelial cells, lung, L415
  - fasting duration, plasma ketone relations (seal), R1086
  - G protein expression, cardiac myocytes, H432
  - hypertension, abnormal membrane properties in neurons, C389
  - hypoxia, control of breathing after, R836
  - myosin isoforms, muscle, L116
  - neurotransmission, cardiac ganglion, H997
  - preweaning life, feeding effects on preweaning (baboon), R157
  - protein and calcium homeostasis, PTH-related, E792
  - regional type II cell development, ultrastructural analysis, L359
  - sarcolemmal phospholipids, lethal cardiac myocyte injury and, C325
  - thermoregulatory thermogenesis, onset of obesity and, E11
- Nephrectomy, bilateral, long-term influence of renin-angiotensin system and, H543
- Nephron
- adjacent, tubuloglomerular feedback interactions, F60
  - arginine synthesis along, F916
  - epidermal growth factor binding sites, segmental distribution of, F553
  - oxidative enzymes, postnatal development of, F895
  - segment, sodium-potassium-ATPase-mediated rubidium influx, F111
  - segments, glutamate dehydrogenase in, F53
  - single, response to systemic amino acids, F739
  - sodium-potassium-ATPase along, sodium affinity of, F246
- Nephrotoxicity, cyclosporin A and vehicle toxicity, renal proximal tubule cells, C897
- Neural control
- ANF release, hypoxia and hypertension (pig), H735
  - excitatory and inhibitory, pyloric smooth muscle, G125
  - goblet cell secretion, airway (guinea pig), L108
  - hypothalamus, medullary reticular formation and, H917
  - intestinal function, G593
  - respiration, receptor interactions in, R911
- Neurobiology, respiratory, recent advances, L24
- Neuroendocrinology, median preoptic nucleus, osmoreponsive units in (sheep), R593
- Neurogenesis, respiratory rhythm and pattern, R879
- Neurohypophysis, median preoptic nucleus, osmoreponsive units in (sheep), R593
- Neuroimmunomodulation, delayed-type hypersensitivity, fever effects on expression of, R1
- Neurokinins, motor response to capsaicin, colon, G889
- Neurokinin A, substance P and, parietal cell function, G646
- Neuromedin B, bombesin receptor antagonists, G468
- Neurons
- abnormal membrane properties, hypertension, neonate, C389
  - brain stem, sympathetic nerve relations, R561
  - bronchial parasympathetic ganglia, electrophysiological properties (guinea pig), L403
  - cholinergic, submucosal, 5-hydroxytryptamine and neuropeptide effects, G1019
  - electrical stimulation, cardiac response to, H1365
  - enteric
    - cation current activated by hyperpolarization (guinea pig), G966
    - substance K stimulation of, gallbladder, model, G838
  - intracardiac, neurotransmission, H997
  - intrathoracic ganglionic, chemical activation of, H1108
  - lateral hypothalamus-perifornical region, control of cardiovascular responses to emotion, R943
  - left atrial ganglion, activity of, H1207
  - outgrowth, F-actin distribution in (bass), C205
  - primary afferent, sensory neuropeptide from, colon, G889
  - serotonergic, response to vasoactive drugs, R963
  - ventrolateral medullary, discharge patterns during muscular contraction, R606
  - volume-sensitive synaptic input, inferior mesenteric ganglion (guinea pig), G490
- Neuropathy
- autonomic, diabetes mellitus, H55
  - diabetic, glomerular response to hyperglycemia, F545
- Neuropeptides
- during fever, brain, R1056
  - goblet cell secretion, airway (guinea pig), L108
  - microinjection of, ventrolateral medulla, cardiovascular effects, R32
  - modulation, submucosal cholinergic neurons, G1019
- receptors: *see* Receptors
- sensory, primary afferent neurons, colon, G889
- xanthine lung injury and, L151
- Neuropeptide Y
- fourth ventricular, ingestive and other behavior and, R317
  - mechanisms, guanethidine-sympathectomy, R371
  - pertussis toxin effects, resistance arteriole contraction, H1427
  - receptor subtypes, E131
  - regulation of blood flow rate, myocardium, H1709
  - release, calcium channel and protein kinase C role in (guinea pig), R925
  - saturable binding sites, brain, G687
  - spinal administration of, hemodynamic and sympathetic effects, H1674
- Neurotransmission, cardiac ganglion, neonate, H997
- Neurotransmitters
- brain, changes during anoxia (turtle), R376
  - excitatory, medial nucleus tractus solitarius neurons (guinea pig), H1389
  - respiratory neurobiology, L24
  - response to prostaglandin fever, brain, R1056
- Neutrophils
- adhesion to mesangial cells, leukotriene stimulation of, F809
  - depletion, thrombin-induced increase in vascular permeability, lung, H149
  - endothelial cell injury mediated by, H925
  - free radicals and oxidants derived from, sarcolemmal sodium-potassium-ATPase, H1330
  - lung injury, reperfusion-induced, antibody against integrin and, L315
  - membrane depolarization, phorbol ester-stimulated, chloride efflux and, C531
  - muscle enzymes and, acute phase response in exercise, R1214
  - nonsteroidal anti-inflammatory drug-induced ulcer and, stomach, G462
  - skeletal muscle dysfunction and, after ischemia-reperfusion, H1809
  - TNF infusion, hypochlorous acid production and, L276
- Newborn: *see also* Neonate
- endothelin, circulatory effects of (pig), H1613
  - gastric acid secretion, maternal milk PGE<sub>2</sub> relations, G702
  - prostanoid effects, cerebrovascular responses to asphyxia and reventilation (pig), H662
- Nicardipine, pH-dependent block, sodium and calcium channels, H1178
- Nicotine
- activation, intrathoracic ganglionic neurons, H1108
  - ganglionic stimulation, skeletal muscle, H1718
- Nifedipine
- calcium-activated potassium transport and, erythrocytes, C332
  - cell volume regulation, proximal tubule, F950
- DOCA-salt hypertension and, glomerular injury, F598
- renal hemodynamics and, F304
- Nigericin
- calibration, HL-60 cells, C490

- Nigericin** (*continued*)  
 channel density changes, diluting segment, kidney (frog), C1005
- Nisoldipine**, calcium channels sensitive to, airway smooth muscle cells, L468
- Nitric oxide**  
 activation, guanylate cyclase, vascular smooth muscle, R38  
 L-arginine dependent relaxation, cGMP formation and, pulmonary artery, H1813  
 basilar artery tone and, H1216  
 endothelial cell release of, flow-mediated vasodilation, H804  
 relaxation and, coronary arteries, H1433  
 vasodilator nerve stimulation, cerebral arteries, H1511
- Nitrogen**  
 balance, muscle, exercise and recovery effects, E470  
 sparing, 2-ketoisocaproate and, parenteral feeding, E633
- Nitroglycerin**  
 cerebral circulation and, H1216  
 cGMP and, epicardial coronary dilation and, H340  
 endothelial dysfunction, cardiac ischemia, H1660  
 endothelium-dependent dilation, basilar artery, chronic hypertension, H1455
- Nitroprusside**  
 chronic portal venous hypertension, responses to hypotension in, G48  
 renin activity, progesterone-cortisol interaction in, R350
- Nitrovasodilator**, endothelial cell release of, flow-mediated vasodilation, H804
- Nonsteroidal anti-inflammatory drugs**, gastric ulceration induced by, G462
- Norepinephrine**  
 adrenergic and cholinergic responses, bronchial arteries, H156  
 adrenergic denervation, diabetes mellitus, H55  
 $\beta$ -adrenoceptors and, smooth muscle cells, stomach (guinea pig), G436  
 afferent arteriolar responses to, prostatic gland effects, F157  
 ANP effects, renal arterioles, F936  
 ANP levels, atrial appendectomy, awake state, R1017  
 L-arginine pathway, endotoxemia, H1038  
 AV junctional rhythm, heart, H839  
 brain, changes during anoxia (turtle), R376  
 central, third ventricle perfusion with (duck), R294  
 cerebral blood flow and energy metabolism, during stress, H269  
 clearance, desipramine effects, congestive heart failure, E261  
 content, platelet, sympathoadrenal activity and, E141  
 depression, endolymphatic sac direct current potential (guinea pig), R921  
 fatty acids, baroreflexes and, forearm, R1164  
 fetal, response to maternal hypoglycemia, R1126  
 graded central hypovolemia, hypoxemia and, H1197  
 hepatic nerves, exercise and, E195  
 hypothalamic control  
 exercise metabolism, R478  
 sympathoadrenal activity, R470
- infusion, insulin sensitivity and, E210  
 kinetics, aging and, E422  
 lead-induced increase, chromaffin cells, C762  
 liver denervation, evaluation of methods, G781  
 permeability and edema, hypertension-induced, oxygen radical effects, H497  
 prostacyclin synthesis, endothelin and, kidney, F645  
 release  
 calcium channel and protein kinase C role in (guinea pig), R925  
 thermal nociception and, blood loss, R1236  
 response, hypoglycemia, enlarged adrenal medulla and, R998  
 sensitivity  
 elevated transmural pressure and, renal arteries, H29  
 mesenteric veins, pregnancy, R753  
 smooth muscle cell membrane, renal pelvis, F888  
 turnover  
 brown fat, adrenalectomy effects, E362  
 brown fat, temperature effects, R90  
 vasculature response to, uterine and umbilical (sheep), H197  
 vasoconstrictor effects of, renal, nifedipine prevention, F304
- Nuclear magnetic resonance**  
 intracellular sodium measurements, heart during ischemia and reperfusion (ferret), H1767  
 phosphorus, barium-induced contracture, myocardium, H1566  
 phosphorus-31, anoxia and acidosis, heart (turtle), R521  
 three-dimensional mapping, acute ischemic regions, left ventricle, H1492
- Nucleosides**  
 coronary flow and, H759  
 transport, brush-border membrane, ileum, G504
- Nucleotides**  
 pools, hemorrhage and resuscitation, heart and brain, H1781  
 sequence, sodium-potassium-ATPase  $\alpha$ -subunit isoforms (chicken), C619
- 5'-Nucleotides**, monosodium glutamate and, synergism, taste nerve responses, R420
- Nucleus ambiguus**, stimulation, pressor response mechanism, R955
- Nucleus tractus solitarius**  
 cardiovascular afferent input to, synaptic mechanism regulation of, H653  
 interstitial solute dispersion, microvascular specializations, R1131  
 neurons, excitatory amino acids in (guinea pig), H1389  
 saturable binding sites, pancreatic polypeptides, G687  
 sensory afferent synaptic transmission in, non-NMDA receptor effects, H1307
- Nutrients**  
 absorption, brush-border membrane vesicles, intestine (eel), R1181  
 CCK-releasing factors, vascularly perfused duodenojejunum, G191  
 ileal infusion, motor pattern of small intestine and, G78  
 intake, energy expenditure and, overfed young men, R461
- Nutrition**, parenteral, amino acid effects on gallbladder emptying, G173
- O**
- Obesity**  
 adipin, adrenal steroid effects, R184  
 adrenalectomy and, brown fat metabolism after, E362  
 brown fat, atrophic state of, R61  
 $\beta$ -cell hyperresponsiveness, before non-insulin-dependent diabetes (monkey), R612  
 corn oil preference and, R1093  
 defective thermoregulatory thermogenesis effects, E11  
 development of, RU 486 effects, R539  
 dietary, susceptibility to, weight cycling and, R1096  
 fat to carbohydrate oxidation, predictor of weight gain, E650  
 glucose metabolism, hepatocytes, E389  
 hypertension induced by, baroreflex sensitivity in, model, R981  
 nutrient intakes, energy expenditure and, young men, R461  
 refeeding after low calorie intake, corticosterone effects on energy expenditure, E658  
 resistance, metabolic differences, R1103  
 spontaneous, aging males, model, R1117  
 vagal stimulation, diminished cardiovascular responsiveness to, R842  
 ventromedial hypothalamic syndrome dissociative analysis, R829  
 gastric emptying and, R658
- Oleate**, ileal infusion, motor pattern of small intestine and, G78
- Olfactory bulb**, natriuretic peptide binding sites, autoradiography, E246
- Oligohydramnios**, endocrine and fluid balance responses, amniotic and allantoic fluid loss (sheep), R745
- Oligomycin**, infusion, ischemia in slow and fast heart rate, H1759
- Oocytes**  
 biotin uptake (frog), C397  
 potassium current, follicle cells and (frog), C775, C784, C792  
 sodium-potassium-chloride ion cotransporter, expression of, F383
- Opiates**  
*E. coli* endotoxemia, left ventricular, H504  
 peptide transport system for, blood-brain barrier, E1
- Opioids**, receptors: *see* Receptors
- Ornithine decarboxylase**  
 accumulation, lung, hypoxic pulmonary hypertension, L351  
 expression, LLC-PK<sub>1</sub> cells, C647  
 gastrin induction of, tyrosine kinase role in, colonic mucosa, G626
- Oscillators**, coupled, sympathetic nerve activity, R549
- Osmolytes**  
 MDCK cells, modulation by solutes, inhibitors, and vasopressin, F653  
 organic, renal medullary cells, F847
- Osmoregulation**  
 drinking behavior, circulating angiotensin II and, R531  
 median preoptic nucleus (sheep), R593  
 vasopressin secretion  
 awake state, E19  
 diabetic ketoacidosis, E723

Osmotic effectors, aldose reductase inhibition of, renal medulla, F733  
 Osmotic equilibria, foreign anion substitution effects, erythrocytes, C819  
 Osteomalacia, trabecular and cortical bone, 1,25-dihydroxyvitamin D<sub>3</sub> infusion, E715  
 Ouabain  
   ANP effects, lymphatics (cow), H42  
   binding  
     reticulocyte maturation and (sheep), C241  
     sodium-potassium pump and, muscle, E278  
   rubidium uptake and, nephron segment, F111  
   skin treated with, net basolateral potassium flux and short-circuit current in (frog), R936  
   voltage-dependent currents and, colonic myocytes, C402  
 Overhydration, antidiuretic effects, subnormal AVP, R53  
 Oxalate, exchange, bicarbonate, basolateral membrane, ileum, G807  
 Oxidants  
   lung injury  
     after short-term hyperoxia, L451  
     alveolar type II cells after hydrogen peroxide, L57  
      $\gamma$ -glutamyl transpeptidase in, alveolar macrophages, L102  
     U74500A inhibition of, H144  
     VIP effects, L151  
   stable, TNF infusion in neutrophils and, L276  
 Oxidase, xanthine dehydrogenase conversion to, cerebral ischemia, H1655  
 Oxidation, splanchnic region effects, leucine metabolism, E36  
 Oxidative capacity, impaired, free fatty acid effects on glycolysis, E451  
 Oxidative enzymes, postnatal development, nephron segments, F895  
 Oxygen  
   body temperature effects, awake state, R492  
   cerebral vascular activity and, newborn (pig), H1230  
   consumption  
     adipose tissue, E599  
     adrenal, catecholamine secretion effects, H681  
     arrested hearts, H1142  
     asynchronously contracting ventricle, R1075  
     lateral hypothalamic lesions, E534  
     maximal, quantitative genetics of (snake), R986  
     mitochondrial, liver, endotoxic rats, E498  
     muscle, respiratory capacity effects, C889  
     myocardial, during isoproterenol, H346  
     myocardial, hypoxia (seal, pig), R849  
     myocardial, pacing during perfusion and, H872  
     pregnancy, calorimetric study (hamster), R807  
     schedule-induced activities, R485  
   deep venous saturation, hand heating effects, E639  
   delivery, subepicardium and subendocardium, H204

deprivation, proximal tubule response, F176  
 diffusion shunt, preglomerular, renal cortex, F910  
 partial pressure  
   adaptations to high altitude, H1667  
   renal cortex, F910  
   pressure: *see* Pressure  
   reactive species, surfactant metabolism and, L328  
   respiratory rhythms, chemoreceptor modulation of, R887  
   tension, cAMP formation and swelling, red blood cells (carp), C723  
   toxicity, prostaglandin synthesis and, perinatal lung cells, L95  
   transport, arteriolar, hemoconcentration effects, striated muscle, H1694  
   uptake, thromboxane effects, postprandial jejunum, G430  
 Oxygenation  
   cardiac, ischemia and reperfusion, H1477  
   skeletal muscle, prediction by glutamate dehydrogenase, C26  
 Oxygen metabolites, reactive, VIP effects, lung, L151  
 Oxygen radicals  
   adenine nucleotide depletion and, endothelial cells, C883  
   adenosine deaminase inhibitor protection from, cardiac ischemia, H835  
   anti-free, sodium, calcium, and function, heart, H137  
   cGMP-associated relaxation and, pulmonary artery, H1056  
   conversion, cerebral ischemia, H1655  
   dilation, cerebral arterioles, H1171  
   free, hypoxia and reoxygenation effects, H518  
   iron-mediated reactions, stunned myocardium, H1901  
   myocardial stunning, H889  
   neutrophils, sarcolemmal sodium-potassium-ATPase and, H1330  
   permeability and edema and, hypertension-induced, H497  
   protective effect against, lipid binding to gastric mucosa, G681  
 2-Oxyglutarate, oxygenation state and, skeletal muscle, C26  
 Oxyhemoglobin, microvascular saturation, cryospectrophotometry, H1912  
 Oxyntic cells, apical membrane vesicles from, potassium and chloride ion conductances in, G850  
 Oxynticopeptic cells, basolateral acidification on (frog), G564  
 Oxytocin  
   pituitary secretion, glucoprivation effects, R447  
   receptors: *see* Receptors  
   vasopressin and, during fever, brain, R1056  

**P**

 Pacemaker  
   activity, circular muscle, G264  
   gastric, denervation of myenteric plexus (turkey), G481  
 Pacemaker cell  
   cardiac, mathematical model (bullfrog), H352  
   neurogenesis, respiratory rhythm and pattern, R879

Pacing  
   atrial, inhomogeneity in conduction, H1254  
   rapid, ventricular dysfunction and (swine), H218  
   reperfusion, myocardial oxygen consumption and, H872  
 PAF: *see* Platelet-activating factor  
 PAI-1: *see* Plasminogen activator inhibitor type 1  
 Palmitic acid, uptake, alveolar type II cells, L206  
 Pancreas  
   anion selectivity, block of small-conductance chloride channel and, C752  
   endocrine, insulin secretion, maternal diet effects, E568  
   gastrin/CCK family, structure/activity relations (chicken), G882  
   growth, bile salt-induced, reduced CCK mediation of, G86  
   secretion  
     CCK and nerves in control of, G198  
     hormonal mechanism of, G960  
     interdigestive duodenal motility and transport, G348  
     saturable binding sites, brain, G687  
 Pancreatic acinar cells, sustained calcium ion increase, amylase secretion and, G792  
 Pancreatic acini  
   inositol phosphates, CCK-induced formation, G655  
   streptolysin O-permeabilized, amylase release and, G157  
 Pancreatic cells  
    $\beta$ -  
     hyperresponsiveness before diabetes (monkey), R612  
     polyamine effects on mitogenic and secretory responses, C828  
     somatostatin receptors, E216  
   AR42J, amiloride effects on sodium-hydrogen exchange and cell proliferation, G842  
   cystic fibrosis, genetic implementation by somatic cell infusion, C1010  
 Pancreatic duct cells, anion selectivity, block of small-conductance chloride channel and, C752  
 Pancreatic islets  
   anion-transporting epithelia, fluorescent stilbene binding proteins in, C439  
   autotransplanted, altered blood flow regulation in, E52  
   function  
     calcium handling and, E117  
     rubidium handling and, E123  
   impaired insulin secretion, PTH chronic excess and, F210  
   insulin release and survival, capacitation of, E548  
   insulin secretion, maternal diet effects, E568  
   sodium-calcium exchange, E844  
 Papillary muscle: *see* Muscle, heart  
 Parasite, products, endothelium-dependent responses in, H649  
 Parasympathetic control, heart rate, atrioventricular conduction and, H536  
 Parasympathetic ganglia, cardiac, neurotransmission in, H997  
 Parasympathetic nervous system, impairment of baroreflex control, heart rate, R76

- Parathyroid hormone  
antagonists, inorganic phosphate transport and, renal cells, F389  
bone resorption, continual monitoring of, R679  
calcium transport and, distal nephron segments, F408  
chronic excess, impaired insulin secretion after, F210  
elevated cytosolic calcium and, phosphate transport, OK cells, F485  
protein and calcium homeostasis related to, lactation, E792  
receptors: see Receptors  
regulation, lactation, E665  
zinc and phosphorus depletion effects, E319
- Paraventricular nucleus  
adrenoceptors, exercise metabolism and, R478  
energy balance and, exercise, R579  
glucoprivation, gastric motility and pituitary oxytocin secretion in, R447  
injection of GRF, feeding behavior and, R651  
neurons, cardiovascular response to emotion, R943  
pressor responses, histamine regulation, R507
- Parietal cells  
acid secretion, chloride channel blocker effects, G536  
function, neurokinin A and substance P effects, G646
- Parotid acini, sodium transport properties, G1044
- Parotid gland  
carbachol-induced potassium efflux, VIP and forskolin effects, C904  
secretory granule membrane proteins, regulated phosphorylation of, G70  
secretory granule membrane, chloride transport across, C413
- Paroxetine, binding, placental serotonin transporter, C196
- PCMBs: see *p*-Chloromercurobenzene sulfate
- PEEP: see Pressure, positive end-expiratory
- Pentagastrin  
mast cell deficiency, impaired gastric acid secretion, G41  
stimulation, gastric secretion (horse), R1259
- Pentobarbital, electrophysiological actions of, general anesthesia, H1743
- Pentoxifylline, manipulation of clot structure, red cells, H1527
- Pepsinogen, release, gastrin-releasing peptide and, chief cells (guinea pig), G760
- Peptides: see also Polypeptides  
atrial, neural control, hypoxia and hypertension (pig), H735  
chemotactic, electrolyte transport and, intestine, G947  
gastrin-releasing, antagonists, G468  
hydrolysis, sarcolemmal membrane, E463  
milk, identification of, G1056  
modulation, endotoxin and  $\alpha$ -MSH, R768  
modulators, myosin light chain kinase, smooth muscle cell contraction and, C315  
monitor, vascularly perfused duodenojejunum, G191  
neurotransmitter, calcium and force with, ileal smooth muscle (guinea pig), C150  
transport systems, opiates, blood-brain barrier, E1
- vasoactive  
phenylephrine actions and, hepatocytes (teleost), E644  
pulmonary vasodilation and, H48
- vasoactive intestinal  
alterations in cAMP, lower esophageal sphincter, G239  
contractor, cardiovascular responses to, H1152  
myocardial electrophysiological effects, H1559  
potassium efflux, salivary gland, C904  
xanthine lung injury and, L151
- Peptide YY  
fourth ventricular, ingestive and other behavior and, R317  
saturable binding sites, brain, G687
- Peptidoleukotrienes, hypoxic pulmonary vasoconstriction and, H751
- Perfusate, rheology, diastolic coronary pressure-flow relations, H603
- Pericardial disease, opioid blockade, awake state, H512
- Pericardium  
ventricular interdependence, theoretical model, H181  
visceral, biaxial mechanical behavior of, H101
- Peristalsis, erythromycin and, G355
- Peritoneal mast cells, calcium ion-permeable channel activation, pertussis toxin pretreatment effects, C715
- Permeability  
acid aspiration edema, phalloidin and, L378  
ammonia, apical and basolateral membrane, F587  
amniotic fluid, filtration coefficient, fetus (sheep), R1281  
bicarbonate, apical membrane of corneal epithelium (frog), C215  
blood-retinal barrier, aldose-reductase inhibition, diabetes, R601
- capillary  
albumin component, hydraulic conductivity and (frog), H1357  
ANP effects, forearm, H258  
atrial peptide action (frog), H1351  
interstitial convection, nucleus tractus solitarius, R1131  
U74500A inhibition of, H144  
cation, erythrocytes, mechanical stress and, C746  
chloride, cystic fibrosis, sweat duct cells, C842  
edema and, hypertension-induced, H497
- endothelial  
charge effects on, H162  
thrombin-mediated increase, enzymatic activity effects, L270  
epithelial, MDCK cells, C577
- hydraulic  
cecum, G786  
descending vasa recta water transport, F688  
intestinal, *C. difficile* toxin A and, G165  
ion, pinacidil effects, resistance vessels, H14
- MDCK monolayers, A23187 effects, C69  
microvascular, PAF-induced leukocyte adherence and, G859  
neutrophil-mediated, elastase and, H1288  
proton, water channel, F366  
salicylic acid, cortical collecting duct, F613  
sodium, feeding effects, gastric antrum, G998
- vascular  
antibody against integrin and, L315  
thrombin-induced, lung, leukocyte repletion and, H149  
ventricular myocytes, potassium channel (guinea pig), H1448
- water  
apical and basolateral cell membranes, inner medullary collecting duct, F986  
cecum, G786  
fluorescent analogue for hydrin 1, E524
- Pertussis toxin  
neuropeptide Y effects and, resistance arteriole contraction, H1427  
pretreatment, calcium ion-permeable channel activation and, peritoneal mast cells, C715  
relaxation and, coronary arteries, H1433
- PGE<sub>2</sub>: see Prostaglandin E<sub>2</sub>
- pH  
acids and, inhibition of gastric emptying, G1025  
acute change, mitochondrial glutamine transport and, F863  
arterial, cerebral blood flow during hyperammonemia and, H34  
block of sodium and calcium channels dependent on, nifedipine, H1178
- cell  
cardiac tissue, anoxia effects (turtle), R15  
hydrogen ion extrusion mechanisms in, F628  
protein kinase C and, inner medullary collecting duct cells, F666  
regulation, outer medullary collecting duct cells, F902  
control, vascular smooth muscle, C134  
cytoplasmic, ATP dependence of, lung macrophages, C586  
gastric secretion, basal and pentagastrin stimulated (horse), R1259  
hydrogen/base transport, confocal fluorescence imaging, C365  
inhibitory effects of phosphate and arsenate, skinned skeletal and cardiac muscle, C933
- intracellular  
anoxia and acidosis, <sup>31</sup>P-NMR measurements, heart (turtle), R521  
changes in channel density, kidney (frog), C1005  
heat effects, A-431 cells, C727  
HL-60 cells, C490  
kidney cells (opossum), C121  
regulation, endothelial cells, C640  
regulation, kidney cells (opossum), C110  
sodium transport properties, parotid acini, G1044  
spermatid energy metabolism, C660  
intramyocardial, during respiratory acidosis (ferret), H843



# SUBJECT INDEX TO VOLUME 259

- low extracellular calcium ion effects, MDCK cells, C19
- mesangial cell, mitogen effects, F269
- muscle, temperature and, R204
- nutrient, oxynticopeptic cell (frog), G564
- phorbol esters and, regulation of current at gap junction, oocyte (frog), C792
- regulation
- basolateral plasma membrane vesicles, liver, neonate, G334
  - carbon dioxide-bicarbonate effects, A10 cells, C471
  - systemic, ketone body production rates and lipolysis, E327
- Phagocytosis
- hydrogen peroxide effects, alveolar macrophages, L87
  - Kupffer cells, pericentral regions of liver lobule, G814
- Phalloidin, acid aspiration edema and, L378
- Phase-response curve, circadian rhythms, entrainment of, bright light and sleep-wake schedules, R1189
- Phenol, liver denervation, evaluation of methods, G781
- Phenoxybenzamine, pressor response, stimulation of nucleus ambiguus, R955
- Phentolamine, anorectic responses, amino acid imbalance, R627
- Phenylalanine
- flux, conversion to tyrosine, E835
  - tracer kinetics, starvation effects, muscle, E477
  - uptake, euglycemic hyperinsulinemia effects, leg tissue, E185
- Phenylalkylamines, neuropeptide Y release and (guinea pig), R925
- Phenylephrine
- fetoplacental response (sheep), H473
  - intramural diffusion barrier, arteriolar reactivity and, H574
  - mechanisms, guanethidine-sympathectomy, R371
  - regulation of plasma ANF, afterload, awake state, H1736
  - vasoactive peptides and, hepatocytes (teleost), E644
- Phenylephrine hydrochloride, serotonergic neuron response to, R963
- Phlorizin
- accumulation, MDCK cells, F653
  - glucose absorption, proximal straight tubules, F580
- Phorbol esters
- activation, <sup>32</sup>P-labeled arterial smooth muscle, C631
  - alteration of myosin light chain phosphorylation, smooth muscle, C769
  - inhibition
    - sodium transport, urinary bladder (frog), F425
    - thyroid metabolism, E529  - neutrophil membrane depolarization stimulated by, calcium-regulated chloride efflux, C531
  - pH and, regulation of current at gap junction, oocyte (frog), C792
  - potassium transport, muscarinic regulation, submandibular epithelial cell line (scorpion), C340
  - protein kinase C, sodium-hydrogen exchange and, inner medullary collecting duct cells, F666
  - regulation of eicosanoid biosynthesis, kidney cells, F698
- Phorbol 12-myristate 13-acetate, neutrophil membrane depolarization stimulated by, calcium-regulated chloride efflux, C531
- Phosphates
- ANP and, dopamine<sub>1</sub>-receptor blockade effects, F138
  - depression of force and, skinned skeletal muscle fibers (frog), C349
  - glutaminase activity dependent on, cortical and medullary tubule segments, F961
  - high-energy
    - intracellular calcium and, myocytes, H1851
    - myocardial, reactive hyperemia, H1190  - inhibitory influences of, skinned skeletal and cardiac muscle, C933
  - inorganic
    - anoxia and acidosis, <sup>31</sup>P-NMR measurements, heart (turtle), R521
    - hypoxia and reoxygenation, heart, H784
    - transport, OK cells, cytosolic calcium elevations and, F485
    - transport, PTH antagonists and, renal cells, F389  - plasma, regulation in calcitonin infusion, E370
  - transport
    - PTH-related protein and TGF- $\alpha$  effects, renal cells, F929
    - renal 25-hydroxyvitamin D-1 $\alpha$ -hydroxylase activity and, E814
    - uptake, HeLa cells, thapsigargin and, F727
- Phosphatidylcholine, composition, bile salt effects on, G205
- Phosphaturia, ANP-induced, dopamine<sub>1</sub>-receptor blockade effects, F138
- Phosphocreatine, fatigue during prolonged exercise, muscle, C834
- Phosphoenolpyruvate carboxykinase, glucose metabolism and, proximal tubules, C455
- Phosphoinositide
- glucagon choleresis and (guinea pig), G736
  - hydrolysis, G protein coupling to, pregnancy effects (guinea pig), E57
  - metabolism, intestinal brush border, G410
- Phosphoinositides, phosphorylation of, cardiac membranes, C987
- Phospholipase
- activation, A23187 effects on MDCK monolayer permeability, C69
  - activity, calcium ionophores and alveolar epithelial cells, L439
  - serum and tissue, intestine alkaline phosphatase release and, G618
- Phospholipase A<sub>2</sub>, potassium effects, MDCK-D1 cells, C224
- Phospholipase C
- AVP stimulation of, RIMCT cells, C693
  - metabolism, intestinal brush border, G410
  - proliferation and, glomerular cells, F326
- Phospholipids
- alkyl ether, responsiveness during pregnancy, H766
  - excretion, DBcAMP effects, liver, G727
  - membrane breakdown, iron effects, ischemic-reperfused heart, H1101
  - metabolism, endothelial cell denudation and, aorta, H442
  - sarcolemmal, selective turnover, lethal cardiac myocyte injury, C325
  - surfactant, clearance and recycling, L1
- Phospholipid vesicles, solubilization of vasopressor receptors in, human platelets, E751
- Phosphonoformic acid, <sup>14</sup>C-labeled, sulfate inhibition of, renal brush-border membranes, F286
- Phosphoprotein, secretory granule membrane, regulated phosphorylation of, parotid gland, G70
- Phosphorus
- absorption, vitamin D-independent, intestine, G631
  - depletion, 1,25-dihydroxyvitamin D<sub>3</sub> and, E319
  - dietary, insulin secretion and, E568
  - restriction, hyperparathyroidism and, uremia, F432
- Phosphorylcholine, lamellar bodies, instillation in alveolar compartment, L238
- Physiology
- undergraduate
    - hands-on laboratory experience, S4
    - membrane potential simulation program, S15
    - problem-solving approach, S1
    - teaching methods, S8
- Pimozide, anorectic responses, amino acid imbalance, R627
- Pinacidil, ion permeability and, resting and contracted resistance vessels, H14
- Pindolol
- $\beta$ -adrenoceptors and, smooth muscle cells, stomach (guinea pig), G436
  - chloride secretion and,  $\beta$ -adrenergic mediated, L426
- Pirenpirone, anorectic responses, amino acid imbalance, R627
- Piretanide, fluorescent protein binding proteins, anion-transporting epithelia, C439
- Pituitary cells, calcium currents in, gadolinium effects, C515
- Pituitary gland
- adrenal steroid receptor binding, after stress or dexamethasone, E405
  - anterior, prolactin release, TNF- $\alpha$  and interferon- $\gamma$  effects, E672
- Pituitary hormones, response, feeding, peripubertal feeding, R25
- Placenta: *see also* Fetus; Lactation; Pregnancy
- basal plasma membrane, anionic amino acid transport systems, C47
  - deamination and decarboxylation, leucine, E492
  - fetoplacental response, prostaglandins (sheep), H473
  - filtration coefficient, determination of (Sheep), R1281
  - serotonin transporter, paroxetine binding and, C196
- Plasma
- constituents: *see* specific constituent
  - insulin uptake from, cerebrospinal fluid, E378
- Plasma membrane: *see* Membrane, plasma

# SUBJECT INDEX TO VOLUME 259

- Plasmin, platelet aggregation induced by, mechanism of, C862
- Plasminogen activator inhibitor type 1, expression, TGF- $\beta$ , modulation of, bronchial epithelial cells, L262
- Plasticity  
airway epithelium, L38  
enzymatic, gastrocnemius fibers, chronic spine, C507
- Platelet-activating factor  
biologically active cellular mediator, C697  
coronary constriction to serotonin and, H1161  
gastric damage and, hemorrhagic shock-induced, G140  
leukocyte adherence induced by, modulation of, microvascular permeability and, G859  
leukocyte-endothelial cell interactions, mesenteric venules, G578  
nonsteroidal anti-inflammatory drugs, gastric ulceration induced by, G462  
peripheral lung strip contraction and, species differences, L81  
platelet responsiveness and, during pregnancy, H766  
resistance and tight junctions, MDCK cells, C577  
role, ischemia/reperfusion-induced leukocyte adherence, G300
- Platelets  
aggregation, plasmin-induced, mechanism, C862  
catecholamine content, sympathoadrenal activity and, E141  
epidermal growth factor, sources for, R545  
interactions, heme-octapeptide-labeled fibrinogen, C611  
responsiveness, platelet-activating factor, during pregnancy, H766  
vasopressin receptors, reconstitution of, E751
- Pneumonia, obliterans and organizing, pulmonary fibrosis, L159
- Polyamines  
accumulation, lung, hypoxic pulmonary hypertension, L351  
expression, LLC-PK<sub>1</sub> cells, C647  
luminal, repair of gastric mucosal stress ulcers, G584  
metabolism, confluent LLC-PK<sub>1</sub> cells, C84  
role in mitogenic and secretory responses, growth factors, pancreatic  $\beta$ -cells, C828
- Polydipsia, schedule-induced, physiological correlates of, R485
- Polypeptides: *see also* Peptides  
gastric inhibitory  
endurance-trained and untrained young men, E155  
opioid receptor mediation of, G922  
islet amyloid, glucose metabolism and glycogenolysis, E457  
mediation, endothelial cell injury and, L123  
pancreatic  
ingestive and other behavior with, R317  
saturable binding sites, brain, G687  
vasoactive intestinal  
intracardiac neurons, neonate, H997  
vasodilation and, colon, G253
- Portal vein, constriction, plasma volume and hyperdynamic circulation, G498
- Posture, norepinephrine kinetics and, age-related differences, E422
- Potassium  
accumulation, atrial cells, model (bullfrog), H370  
adaptation, morphological response to aldosterone, F88  
cation permeability, erythrocytes, mechanical stress and, C746  
conductance  
agonist-regulated, salt-secreting epithelial cells, C358  
basolateral, C181  
dilation, cerebral arteries, H902  
extracellular  
arachidonic acid release and, MDCK-D1 cells, C224  
sodium-potassium-ATPase and, kidney cells, F227  
flux, basolateral, ouabain-treated skin (frog), R936  
furosemide-dependent fluxes, ventricular myocytes, H962  
high, heart arrested by, oxygen consumption in, H1142  
secretion, ANF effects, medullary collecting duct, F415  
transport  
blocker effects, gallbladder epithelium, C56  
calcium-activated, nifedipine effects, erythrocytes, C332  
muscarinic regulation, submandibular epithelial cell line (scorpion), C340
- Potassium channel  
acetylcholine-sensitive, atrial myocytes, H1730  
activation, hypotonic shock, proximal tubular cells, F348  
ATP-sensitive  
G proteins and, ventricular myocytes, H820  
quinidine blockade of, heart, H1609  
basolateral  
aldosterone regulation of, alveolar epithelium (frog), L230  
sodium chloride absorption and, C181  
conductances, apical membrane vesicles, oxyntic cells, G850  
density, changes in, diluting segment (frog), C1005  
opener, pinacidil effects on ion permeability, H14  
pulmonary vasodilation and, H48  
small-conductance, regulation in apical membrane, cortical collecting tubule, F494  
smooth muscle cells, airway, L384  
time-dependent, permeability of, ventricular myocytes (guinea pig), H1448  
voltage dependence and, arterial smooth muscle tone, C3
- Potassium chloride  
acetylcholinesterase expression, tracheal smooth muscle contraction, L130  
depolarization, G protein expression in myocytes and, H432  
reflection coefficients, basolateral cell membrane, F594
- Potassium-chloride cotransport  
swelling-activated, erythrocytes, C960  
ventricular myocytes, H962
- Potassium current  
G proteins, heartbeat regulation, H1621
- oocyte, follicle cells and (frog), C775, C784, C792
- smooth muscle cells, airway, L384  
specific component of, lanthanum blockage of, cardiac cells, H1881  
voltage-dependent, somatostatin effects, somatotrophs, C854
- Potentials  
action  
atrial cell, model (bullfrog), H370  
cardiac pacemaker cell (bullfrog), H352  
cerebral, esophageal distension and, G955  
direct current, endolymphatic sac, catecholamine depression of (guinea pig), R921  
evoked, global ischemia (pig), H1551  
excitatory junction, bronchi, L304  
membrane  
arterial smooth muscle tone, C3  
cerebral arterial hyperpolarization and dilation, H668  
pinacidil effects on ion permeability, H14  
simulation program, students, S15  
smooth muscle, renal pelvis, F888  
pacesetter, jejunal transit, G928  
synaptic, bronchial ganglia (guinea pig), L403  
transmembrane, insulin and isoproterenol effects, isolated myocytes, H554
- Prazosin, <sup>3</sup>H-labeled, skeletal muscle, H1402
- Pregnancy: *see also* Fetus; Lactation; Placenta  
calcium and phosphorus absorption, vitamin D-independent, intestine, G631  
energetics of, calorimetric study (hamster), R807  
fetoplacental response  
prostaglandins (sheep), H473  
vasoconstriction (sheep), H464  
G protein coupling and, myometrium (guinea pig), E57  
hypoglycemia in, fetal response to catecholamines and, R1126  
moderate hemorrhage effects, kidney, awake state, F945  
norepinephrine sensitivity, mesenteric veins, R753  
platelet responsiveness, platelet-activating factor effects on, H766  
pressor effects of EDRF, awake state, F293  
protein content, myosin light chain phosphorylation and, uterine arteries, C484  
renin activity, progesterone-cortisol interaction in, R350  
uterine and umbilical response, angiotensin II and norepinephrine (sheep), H197
- Prepyriform cortex  
dietary limiting amino acid injection into food intake and, F709  
meal patterns and, F716
- Pressor responses  
acute renal hypotension, naloxone effects, E432  
mechanism, stimulation of nucleus ambiguus, R955

Pressure: *see also* Blood pressure

- arterial
  - central control of, R1063
  - diazoxide-induced hypotension relations, R362
  - hypoproteinemia and, H1317
  - intrarenal ANP infusion and, R585
  - long-term control, models, R865
  - normalization of, after barodenervation, R1172
  - pulmonary, peptidoleukotrienes and, H751
  - rapid hemorrhage and, fetus, H567
  - spinal administration of neuropeptide Y, H1674
  - stimulation of nucleus ambiguus, R955
- capillary, regulation, isolated arterioles, myogenic responses of, H1890
- central venous, ANP effects, forearm, H258
- glomerular, spontaneous hypertension, F529
- intraluminal
  - coronary arterioles, H1063
  - regulation, ileum, G767
- left atrial
  - hypoxic pulmonary vasoconstriction, H93
  - regional peak lengthening rates and, H480
- lower body negative
  - baroreflex response to, R792
  - renal responses to, F573
- lower esophageal sphincter, control by dorsal motor nucleus of vagus, G899
- mean circulatory filling, aortic chemoreceptors and vascular capacitance, H933
- outflow, liver lymph flow and (sheep), R780
- overload
  - acidosis effects on skinned muscle fibers, H1044
  - long-term, changes during, heart, H849
- oxygen, intra- and extracellular, working muscle, H84
- positive end-expiratory
  - hypoxic pulmonary vasoconstriction and, H697
  - venous drainage, hindlimb, H1789
- pulmonary artery, adaptations to high altitude, H1667
- recordings, duodenal cross-sectional area during, G26
- stop-flow, angiotensin II and TGF in, F565
- transmural, norepinephrine sensitivity and, renal arteries, H29
- upper esophageal sphincter, determinants of, G245
- venous, baroreflex response to, R792
- Pressure-diameter relations, regulation, sympathetic activity, H674
- Pressure-flow relations
  - coronary, wall stretch effects, H1869
  - diastolic coronary, perfusate rheology in, H603
  - pulmonary, hypoxic pulmonary vasoconstriction, H697
- Pressure-volume relations
  - atrial, left atrial compliance, H1006
  - force-velocity and end-systolic comparison, intrinsic left ventricular function, H1419
- Progesterone, cortisol interaction, control of renin activity, R350

Prolactin

- basal secretion, calcium channels and, single male lactotropes, C949
- release, TNF- $\alpha$  and interferon- $\gamma$  effects, E672
- Proline, transport, transporter development, intestine, G544
- Prostacyclin
  - endothelin interactions, renal actions of, F645
  - formation, after reoxygenation of anoxic endothelium, C738
  - synthesis, stimulation by hyperoxia, perinatal lung cells, L95
- Prostaglandins
  - alveolar reactive hyperemia, skeletal muscle, H1313
  - blockade, muscle afferent response to static contractions and, H745
  - cerebrovascular responses and, asphyxia and reventilation, newborn (pig), H662
  - chemotactic peptide effects, electrolyte transport, intestine, G947
  - chloride permeability and, normal and cystic fibrosis sweat duct cells, C842
  - dilation, cerebral arterioles, H1171
  - during fever, brain, R1056
  - endothelin interactions, renal actions of, F645
  - excitation, distal colon, G753
  - fetoplacental (sheep), H473
  - food allergy, jejunal smooth muscle contraction and, G6
  - growth and cysteinyl leukotrienes, airway epithelial cells, L255
  - inhibition
    - glomerular and tubular function, F233
    - interleukin 1 $\beta$ -induced growth of mesangial cells, F419
  - metabolism
    - alveolar type II cell differentiation, L73
    - cardiac myocytes, H582
    - clara cells, L213
  - microcirculation and, during sepsis, H728
  - protein turnover and, tumor-bearing rats, C526
  - release, acrolein effects, airway epithelial cells (bovine), L222
  - secretory capacity and, small intestine, G474
  - stretch-induced, skeletal muscle (chicken), C232
  - synthesis, stimulation by hyperoxia, perinatal lung cells, L95
  - vasoconstrictor agonists, afferent arterial responses to, F157
  - vasotocin and, calcium release and inositol production, uterine cells (chicken), E872
- Prostaglandin E<sub>2</sub>
  - cell calcium and protein kinase C activation, cortical collecting ducts, F318
  - maternal milk, gastric acid secretion in newborn and, G702
  - potassium effects, MDCK-D1 cells, C224
  - production, macrophages, virus-induced alterations in, L396
  - prolonged hypoxemia and (sheep), R703
- Prostaglandin endoperoxide synthase, phorbol ester stimulation, kidney cells, F698
- Prostanoids
  - cerebral vascular activity and, newborn (pig), H1230

- cerebrovascular responses and, asphyxia and reventilation, newborn (pig), H662
- CSF, vasodilation and, recombinant interleukin 1 $\alpha$  (piglet), H1486
- EDRF and, vasodilation, H1835
- endogenous, sodium-chloride transport and, proximal colon (pony), G62
- Protamine, lung injury, after short-term hyperoxia, L451
- Protease
  - inhibitors, vascularly perfused duodeno-jejenum, G191
  - vectorial secretion, renal cells, C869
- Protein
  - adipin, reduced, adrenal steroids and, obesity, R184
  - calcium-binding
    - developmental changes, hypertension, F104
    - vitamin D-dependent, F195
  - carrier, basolateral plasma membrane of proximal tubule, F559
  - content, myosin light chain phosphorylation and, uterine arteries in pregnancy, C484
  - contractile
    - heart, hormones in hypertrophy, H866
    - muscle, neonate, L116
  - copper-binding, albumin effects, fibroblasts and hepatocytes, G219
  - different diets, amino acid transport and, liver, E614
  - eosinophil, epithelium-dependent contractions and, airway, L294
  - female, (Armenian hamster), R341
  - glucose transporter content, muscle fiber types and, E593
  - guanine nucleotide-binding
    - adrenoceptor metabolism, S49 cells, C41
    - heartbeat regulation, H1621
    - intestinal brush border, G410
  - heat-shock, calcium induction of, monocytic line U-937, C77
  - homeostasis, PTH-related, lactation and, E792
  - hormonally regulated, lung, fetus, L283
  - metabolism
    - after injury with turpentine, E763
    - insulin effects, voluntary running, E706
    - insulin-induced hypoglycemia effects, E342
    - muscle, starvation effects, insulin response and, E477
  - myofibrillar
    - adaptation to glucocorticoids, E699
    - thermal acclimation and (fish), R231
  - phosphorylation, colonic mucosa, G626
  - plasma, regenerating liver, gene expression in, G340
  - PTH-related, phosphate transport and, renal cells, F929
  - recombinant, prolactin release and, E672
  - secretory granule membrane, regulated phosphorylation of, parotid gland, G70
  - surfactant
    - analysis of gene expression, L185
    - lung maturation and, fetus, L337
    - regulation by hormones and butyrate, fetal lung, L488
  - synthesis
    - chromaffin vesicles, C161
    - inhibition, myocardial protection, H1822

## Protein (continued)

- mitochondrial, insulin stimulation, heart, E413
  - muscle, exercise and recovery effects, E470
  - parenteral feeding, E633
  - skeletal muscle (chicken), C232
  - turnover
    - cimaterol effects, E822
    - euglycemic hyperinsulinemia effects, leg tissue, E185
    - prostaglandin role in, tumor-bearing rats, C526
    - skeletal muscle (chicken), C232
    - vectorial secretion, renal cells, C869
  - Proteinases, prostaglandins and, skeletal muscle (chicken), C232
  - Protein kinase C
    - activation
      - PGE<sub>2</sub> effects, cortical collecting ducts, F318
      - <sup>32</sup>P-labeled arterial smooth muscle, C631
    - amylase release, pancreatic acini, G157
    - bradykinin response, SV40-transformed WI-38 cells, C549
    - calcium channels and, release of norepinephrine and neuropeptide Y (guinea pig), R925
    - inhibition, sodium-coupled uptakes, proximal tubules, F816
    - involvement, arteriolar myogenic reactivity, H1586
    - myofilament calcium sensitivity and, vascular smooth muscle, H2
    - NaF-induced inositol phospholipid turnover, insulinoma cells, E73
    - phospholipids and proliferation, glomerular cells, F326
    - role in renal vasoconstriction, angiotensin II and, C421
    - sodium-dependent phosphate uptake and, HeLa cells, F727
    - sodium-hydrogen exchange and inner medullary collecting duct cells, F666
    - sodium transport and, urinary bladder (frog), F425
  - Proteinuria, focal glomerular ischemia and, F239
  - Proteolysis, myofibrillar, insulin- and thyroid hormone-independent adaptation, glucocorticoids, E699
  - Protooncogene, expression, colon-stimulating factor effects, alveolar macrophages, L144
  - PTH: see Parathyroid hormone
  - Puberty, peripubertal female, hormonal responses to feeding, R25
  - Pulmonary artery
    - cGMP-associated relaxation, superoxide anion effects, H1056
    - relaxation and cGMP formation, L-arginine-dependent, H1813
    - responses, C5a anaphylatoxin, H1325
    - tension, hypoxia effects, H281
  - Pulmonary fibrosis
    - pathophysiology of, L159
    - procollagen IV, laminin mRNA and, L47
  - Pulmonary vein, endothelium and mechanical responses, histamine (monkey), H1032
  - Pump
    - calcium, vitamin D-dependent calcium binding proteins, F195
  - hydrogen, outer medullary collecting duct cells, F902
  - sodium
    - developmental differences, lung epithelial cells, L481
    - potassium dilation of arteries, H902
    - reticulocyte maturation and (sheep), C241
    - voltage-dependent currents in, ouabain effects, C402
  - sodium-potassium
    - aldosterone effects, kidney tubules, F40
    - dependence on sodium, cardiac myocytes, H488
    - high extracellular potassium effects, kidney cells, F227
    - muscle, E278
    - parotid acini, G1044
  - Purine nucleotide cycle, ammonia flux, exercise and recovery, E170
  - Putrescine
    - lung, hypoxic pulmonary hypertension, L351
    - uptake and metabolism, confluent LLC-PK<sub>1</sub> cells, C84
  - Pyloric sphincter, smooth muscle, excitatory and inhibitory neural regulation of, G125
  - Pyrogen, interleukin 1 $\beta$  and TNF, fever, R724
  - Pyrophosphate gels, muscle, neonate, L116
  - Pyruvate, oxidation, substrate preference, early myocardial reperfusion, H317
  - Pyruvate dehydrogenase
    - insulin receptor kinase activation and, E111
    - insulin receptors, mammary gland, E828
  - Pyruvate kinase, glucose metabolism and, proximal tubules, C455
- Q**
- Quinidine
    - bicarbonate current, apical membrane, corneal epithelium (frog), C215
    - blockade, potassium channels, heart, H1609
  - Quinine
    - potassium channels and, gallbladder epithelium, C56
    - potassium transport, muscarinic regulation, submandibular epithelial cell line (scorpion), C340
- R**
- Raffinose, reflection coefficients, basolateral cell membrane, F594
  - Receptors
    - acetylcholine, junctional-type, muscle fibers (snake), C911
    - adenosine, follicle cell-dependent currents (frog), C775, C784, C792
    - adenylyl cyclase, follicle cells (frog), C784
    - adrenal steroid, binding of dexamethasone, spleen and thymus, E405
    - adrenergic
      - bronchial arteries, H156
      - cell swelling, erythrocytes (carp), C723
      - hypothalamic, sympathoadrenal activity and, exercise, R470
      - paraventricular hypothalamic, exercise metabolism and, R478
    - $\alpha$ -adrenergic
      - aorta and coronary artery, quantitative and autoradiographic analyses, H1343
      - elevated extracellular potassium effects, C224
      - hemodynamic response to aortic cross clamping and, H68
      - myogenic interaction, microvascular smooth muscle, H1126
      - sodium chloride, tracheal epithelial cells, L66
    - $\alpha_1$ -adrenergic, distribution, skeletal muscle, H1402
    - $\alpha_2$ -adrenergic
      - adipose tissue, prolonged starvation effects (hamster), E80
      - regulation of sodium-hydrogen exchange, F977
      - renal, modulation of vasopressin, F1
    - $\beta$ -adrenergic
      - cerebral blood flow during stress, H269
      - metabolism, S49 cells, C41
      - reduced sensitivity, heart failure, H1009
      - single cardiomyocytes, high-speed digital imaging, H230
      - smooth muscle cells, stomach (guinea pig), G436
      - subtypes, coronary circulation, H1575
  - ANF, glomerular epithelial and mesangial cells, F619
  - ANP
    - autoradiographic localization, kidney, F26
    - mineralocorticoid hypertension, F130
  - baroreceptors
    - blood pressure oscillations, awake state, H1050
    - denervation effects, vasopressin and drinking, R618
    - pressure natriuresis, awake state, F466
    - sinoaortic, denervation, posterior hypothalamic stimulation in, H720
  - bombesin, antagonists, G468
  - bradykinin, SV40-transformed WI-38 cells, C549
  - calcium trigger, lead and, chromaffin cells, C762
  - cardiac
    - angiotensin II in, H610
    - pressure-overload, renin-angiotensin system involvement in, H324
  - CCK, sphincter of Oddi, G873
  - chemoreceptors
    - aortic, vascular capacitance and, H933
    - endogenous respiratory rhythm and, R887
    - modulation of ventilatory activity, R911
  - cholecystokinin, muscle cells, stomach and gallbladder, G184
  - dihydropyridine, myocardial sarcolemma (trout), R453
  - dopamine
    - adenylyl cyclase coupling, proximal convoluted tubules, F971
    - inhibition of sodium-potassium-ATPase activity and, proximal tubule, F924
    - kidney function and, F793
  - EGF, segmental distribution of, F553
  - extracellular matrix, kidney cortex, F783
  - fluorescent vasotocin, bladder (toad), C462



# SUBJECT INDEX TO VOLUME 259

- glucocorticoid, sodium-potassium transport and, collecting duct cells, F672
- glucocorticoid GR, development of obesity and, R539
- H<sub>1</sub> and H<sub>2</sub>, pulmonary vein responses (monkey), H1032
- insulin
  - kinase activation, high-fat-sucrose diet effects, E111
  - lactation, mammary gland, E828
  - skeletal muscle, E517
- leukotriene antagonist, LTC<sub>4</sub>, vasoconstriction and, stomach, G147
- low-pressure, hemorrhage, brain, R305
- mechanoreceptors
  - endogenous respiratory rhythm and, R898
  - modulation of ventilatory activity, R911
- muscarinic, pre- and postjunctional, bronchi, L304
- muscarinic and nicotinic, modulation of ACh release, ganglionic, R288
- neuropeptide, hemodynamic effects, H174
- neuropeptide Y, distinction in vivo and in vitro, E131
- opioid, gastric somatostatin secretion and, G922
- osmoreceptors, peripheral, vasopressin secretion, awake state, E19
- oxytocin, kidney, during development, F872
- PTH, downregulation of, renal membranes in aging, F444
- renal ANP, spontaneous hypertension, F605
- respiratory control and, vertebrates, R878
- serotonergic, aorta and coronary artery, quantitative and autoradiographic analyses, H1343
- somatostatin, pancreatic  $\beta$ -cell, E216
- steroid, sodium-potassium transport and, collecting duct cells, F672
- transferrin, iron uptake and, hepatocytes, G611
- urokinase, enzyme activity and, alveolar macrophages, L432
- vasopressin, reconstitution, human platelets, E751
- vasotocin, new probe for, E524
- Red blood cells: *see* Erythrocytes
- Reflexes
  - autonomic, ventricular afferents and kidney function, F18
- baroreflexes
  - arterial, responses to hypotension, awake state, G48
  - control, forearm vascular resistance, dietary fatty acids and, R1164
  - parasympathetic impairment of heart rate control, R76
  - response to blood volume changes, R792
  - response to vagal stimulation, R842
  - sensitivity, aortic blood flow, H448
  - sensitivity, obesity-induced hypertension, model, R981
  - sensory afferent synaptic transmission, medial nucleus tractus solitarius, H1307
  - sinoatrial, denervation, posterior hypothalamic stimulation in, H720
  - carotid baroreceptor-cardiac, heart failure, H689
- Hering-Breuer
  - interbreath interval (African lungfish), R139
  - respiratory control after hypoxia, neonate, R836
- pressor, discharge patterns, ventrolateral medullary neurons, R606
- renal nerve activity, isometric muscle contraction, H1380
- Renal artery, elevated transmural pressure, norepinephrine sensitivity and, H29
- Renal nerve
  - activity
    - hemorrhage effects in anesthesia, H1134
    - reflex responses, isometric muscle contraction, H1380
    - spinal administration of neuropeptide Y, H1674
  - neurogenic control, pressure natriuresis, awake state, F466
  - serotonin-induced natriuresis and, R1267
- Renin
  - activity, progesterone-cortisol interaction in control of, R350
  - gene-expressing cells, recruitment of, kidney, F660
  - gene expression, angiotensin II regulation of, F882
  - intrarenal inhibition, kidney hemodynamics and excretory function, R7
  - long-term arterial pressure control, computer and graphic models, R865
  - plasma activity, rapid hemorrhage and, fetus, H567
  - prostacyclin synthesis, endothelin and, kidney, F645
  - release, lower body negative pressure, F573
  - response, acute renal hypotension, naloxone effects, E432
  - secretion
    - macula densa stimulus for, F186
    - stimulation by ethacrynic acid, F539
  - vasopressin and drinking, baroreceptor effects, R618
- Renin-angiotensin-aldosterone system, endothelin and, experimental congestive heart failure, F312
- Renin-angiotensin system
  - ANF and, blood pressure control, R973
  - enalapril and response to ANF, heart failure, R84
  - fluid excretion and, after cardiac denervation, R70
  - hypertension, salt sensitivity and, R1012
  - hypotension, thirst relations, R362
  - inhibition, salt appetite and, R736
  - intrarenal, angiotensin-converting enzyme inhibition, F660
  - intrarenal inhibition, kidney hemodynamics and excretory function, R7
  - long-term vascular influence, abolition of, H543
  - macula densa control, F186
  - pressure-overload cardiac hypertrophy and, H324
- Reoxygenation
  - anoxic endothelium, prostacyclin formation after, C738
  - hypoxia and
    - lung glutathione system, H518
    - myocardium, H784
- Reperfusion, ischemia and, leukocyte adherence induced by, PAF and, G300
- Resistance
  - brain vessels, tone regulation of, H243
- coronary
  - adenosine response, ontogeny of (guinea pig), H1637
  - nondefatted albumin and, saline-perfused heart, H1606
  - oxygen consumption in arrested hearts, H1142
- insulin, high-fat-sucrose diet effects, E111
- peripheral, ANP infusion and vasoconstriction, awake state, R813
- pulmonary vascular, PEEP effects, H697
- renal vascular
  - pregnancy, awake state, F945
  - response to angiotensin and thromboxane, F372
- total peripheral, high-salt intake effects, H1629
- transepithelial electrical, calcium and, epithelial cells, C978
- vascular
  - during heat stress, H1796
  - fetoplacental response (sheep), H464
  - forearm, dietary fatty acids and, R1164
  - hemodynamics, hypertension, and behavior, H248
  - hypoxemia and, H1197
  - portal venous and hepatic arterial relations, G1010
  - renal, endothelium-derived relaxing factor effects, F9
  - venous drainage, hindlimb, H1789
- Resistance artery, saline infusion, contraction and, H23
- Resistance vessels, resting and contracted, pinacidil effects on ion permeability, H14
- Respiration
  - body temperature effects, awake state, R492
  - mitochondrial, insulin stimulation and, heart, E413
  - movements, fetal, endocrine responses to hypoxemia (sheep), R703
  - rhythm and pattern, neurogenesis of, R879
- Respiratory capacity, inhibition of, muscle peak oxygen consumption, C889
- Respiratory drive, apneas and arrhythmias, free movement and, R282
- Respiratory failure, acute, fibroblast-derived mitogens for alveolar type II cells, L247
- Respiratory pattern
  - chemoreceptor modulation of, R887
  - mechanoreceptor modulation of, R898
- Respiratory quotient, fat to carbohydrate oxidation, predictor of weight gain, E650
- Respiratory regulation
  - after hypoxia, neonate, R836
  - chemoreceptor modulation, R887
  - mechanoreceptor modulation of, R898
  - receptors in, vertebrates, R878
  - timing, interbreath interval (African lungfish), R139
- Respiratory syncytial virus, alterations in TNF and PGE<sub>2</sub> production, macrophages, L396
- Resuscitation, hemorrhage and, R663
- preheparinization and, R645
- Reticulocytes, maturation, decrease in sodium-potassium-ATPase and (sheep), C241

S

- Retina cells, bipolar and horizontal, F-actin distribution in (bass), C205
- Retinal pigment epithelium, cultured cells from, sodium-potassium-chloride cotransport in, C29
- Retinopathy, diabetes, aldose reductase inhibition of, R601
- Reventilation, cerebrovascular responses to, prostanoid effects, newborn (pig), H662
- Rhythmogenesis, respiratory, recent advances, L24
- Rhythms
- atrial, irregular, ventricular response during, H1015
- AV junctional, sympathetic-parasympathetic imbalance, heart, H839
- cardiac-related, sympathetic nerve activity, awake state, R499
- circadian
- core temperature, juvenile rat, R270
  - entrainment, development and (opossum), E384
  - entrainment of, bright light and sleep-wake schedules, R1189
  - lighting condition effects, E162
  - modulation of homeostatic drinking, R1035
  - regulation in calcitonin infusion, E370
  - suprachiasmatic nucleus (hamster), R1083
  - taste threshold and, R931
  - triazolam effects (hamster), R514
- diurnal, bone resorption, R679
- respiratory
- central generation, R1063
  - chemoreceptor modulation of, R887
  - mechanoreceptor modulation of, R898
  - neurogenesis of, R879
- Ribonucleic acid
- messenger
    - glucose transporter content, muscle fiber types, E593
    - intestinal alkaline phosphatase, G93
    - regenerating liver, G340
    - renin, gene expression, F882
    - renin distribution, kidney, F660
    - stress ulcer repair, gastric mucosa, G584
    - temperature acclimation and (fish), R237
- Rostral ventrolateral medulla, sympatho-respiratory integration and, R1063
- RU 486, development of obesity and, R539
- RU 28362, glucocorticoid stimulation, sodium-potassium transport, collecting duct cells, F672
- Rubidium
- influx, sodium-potassium-ATPase-mediated, nephron segment, F111
  - sodium-potassium-chloride ion cotransporter expression, oocytes, F383
- Rubidium-86
- aldosterone effects, sodium-potassium pump, kidney tubules, F40
  - handling, ketone bodies and islet function, E123
- Running: *see* Exercise
- RX 77368, stimulation, gastric histamine release, G599
- Ryanodine
- contractility, ventricular myocytes, H395
  - contraction and calcium content, sarcoplasmic reticulum (guinea pig), H1222
  - smooth muscle contraction and, gallbladder, G1
- Salicylic acid, permeability: *see* Permeability
- Saline, infusion, contraction in resistance artery and small vein, H23
- Salivary acinar cells, volume, chloride content and, C998
- Salivary gland
- carbachol-induced potassium efflux, VIP and forskolin effects, C904
  - single cells, chloride content, C998
- Salt
- appetite
    - angiotensin and, R729
    - angiotensin-converting enzyme inhibitor and, R736
  - intake
    - calcium deprivation and, R411
    - high, hemodynamics of, H1629
  - sensitivity, hypertension with angiotensin II, R1012
  - taste, recognition threshold of, circadian rhythm in, R931
- Sarcolemma
- hydrolysis, peptides, E463
  - myocardial, calcium transport (trout), R453
  - phosphoinositide phosphorylation, C987
  - phospholipids, selective turnover, lethal cardiac myocyte injury, C325
  - reperfusion injury, subcellular distribution of peroxidized lipids, H116
- Sarcolemmal vesicles, skeletal muscle, glutamine transport in, E284
- Sarcomere
- dynamics, single muscle fibers (frog), C266
  - length
    - intracellular calcium and high-energy phosphates, H1851
    - subepicardium and subendocardium, H204
- Sarcoplasmic reticulum
- acidosis effects, skinned muscle fibers, H1044
  - ANP secretion, basal and stretch-augmented, C801
  - calcium content, single myocytes, heart (guinea pig), H1222
  - calcium release, exercise training effects (pig), H643
  - calcium transients, ventricular myocytes, H395
  - calcium waves, myocytes, H940
  - functional properties, skinned muscle fibers, C503
  - phosphoinositide phosphorylation, C987
  - reperfusion injury, subcellular distribution of peroxidized lipids, H116
- Satiety
- behavioral adjustments, sham feeding, R1228
  - intraduodenal infusion of fat and, sham-fed rats, R110
  - real or sham feeding, insulin and flavor aversions, R823
- Sclerosis, glomerular, hypertension and glomerular injury caused by, F239
- Secretagogues
- insulin, capacitation, pancreatic islets, E548
  - pancreatic, inositol phosphates and, acini, G655
- Secretin, sodium oleate-stimulated secretion and, pancreas, G960
- Sensory nerves, capsaicin desensitization, atrophy in brown fat and, R324
- Sepsis, microcirculation during, prostaglandin effects, H728
- Serotonin
- activation, L-arginine pathway, coronary arteries, H1433
  - brain, changes during anoxia (turtle), R376
  - centrally administered, renal sodium and water excretion and, R1267
  - coronary constriction to, leukocyte and PAF augmentation, H1161
  - food allergy, jejunal smooth muscle contraction and, G6
  - modulation, submucosal cholinergic neurons, G1019
  - receptor antagonists, anorectic response to amino acid imbalance and, R627
  - release, neuropeptide Y receptors, in vivo and in vitro, E131
  - resistance, brain vessels, H243
  - sodium-hydrogen exchange and, kidney cells, F977
  - transporter, placental, paroxetine binding and, C196
- Serum factors, exogenous and endogenous triglycerides, hepatocytes, G15
- Sex differences, male physiology, glycolytic component of spermatid energy metabolism, C660
- Sex hormones, hypertrophy and, cardiac, male and female, H866
- Shock
- hemorrhagic, gastric damage induced by, platelet-activating factor and, G140
  - hypotonic, potassium channel activation, proximal tubular cells, F348
  - hypovolemic
    - central angiotensin system and hypertonic resuscitation, H1752
    - nucleotide pools, heart and brain, H1781
    - microvascular response, skeletal muscle, H190
    - muscle blood flow during, laser-Doppler flowmetry, H860
    - opioid blockade, awake state, H512
    - septic, antibiotics versus cardiovascular support, model, H1440
- Shunt
- diffusion, inert gas transport, myocardium, H167
  - peripheral pentose, putative lipostatic factor and, R45
  - portacaval, cerebral dysfunction and, E104
- Sinoatrial node
- heart rate and, separate parasympathetic control, H536
  - parasympathetic postganglionic pathways, H1504
- SK&F 102922, excitation, distal colon, G753
- Skin
- hyaluronan removal rate, H532
  - ouabain-treated, net basolateral potassium flux and short-circuit current in (frog), R936
  - prenodal lymph, hyaluronan in, H1097
  - vascular bed, blood reservoir during heat stress, H1796
- Sleep
- enteric migrating motor complex relations, G983

# SUBJECT INDEX TO VOLUME 259

- interleukin 1 $\beta$  somnogenic activity, interleukin 1 $\alpha$ , R439
- rapid eye movement
- Sleep cycle, enteric migrating motor complex relations, G983
- Slow waves
  - electrical
  - pacemaker activity, colonic circular muscle, G264
  - propagation of, colon, G258
- Sodium
  - absorption
    - cholinergic inhibition of, colon (turtle), C668
    - electroneutral, L-glutamine stimulation of, jejunum (piglet), G99
    - portal hypertonic sodium chloride infusion, R1289
  - affinity, sodium-potassium-ATPase along nephron, F246
  - ANF and, blood pressure control, R973
  - ANP and, dopamine<sub>1</sub>-receptor blockade effects, F138
  - anti-free radical agent effects on, heart, H137
  - cation permeability, erythrocytes, mechanical stress and, C746
  - cerebral concentration, appetite and, R741
  - concentration, salivary, circadian rhythm in, R931
  - conductance, apical membrane, cAMP mediation of, cortical collecting duct, F823
  - dependence, response to aldosterone, F88
  - depletion, renal hemodynamics and excretory function with, R7
  - efflux
    - magnesium-dependent, giant axons (squid), C541
    - unidirectional, inner medullary collecting duct, F222
  - electrogenic sodium-hydrogen antiporter, antennal glands (lobster), F758
  - excretion
    - ANF release and, high-output heart failure, H1374
    - ANP infusion and arterial pressure, R585
    - captopril and ibuprofen interaction, glomerular and tubular function, F233
    - neurogenic control, awake state, F466
    - renal, mineralocorticoid escape and, F839
    - response to graded hemorrhage, awake state (pig), R119
    - serotonin effects, kidney, R1267
    - ventricular afferents and, F18
  - extracellular, low, inotropic effects, heart, H712
  - flux
    - apical surface, distal colon, C35
    - differential, clip models of volume expansion, F480
    - intake, calcium deprivation and, R411
    - loss, urinary, replacement of, awake state, R313
    - organic anion transport, urinary bladder (crustacean), R147
    - pump: see Pump
    - reabsorption, heart failure, R84
    - restriction
      - norepinephrine kinetics and, aging effects, E422
      - plasma volume and hyperdynamic circulation, G498
    - retention
      - hypertension, angiotensin II and, R1012
      - tubuloglomerular feedback, R97
    - sodium-potassium pump dependence on, cardiac myocytes, H488
    - TPA-stimulated influx, SV40-transformed WI-38 cells, C549
    - transport
      - basolateral, ouabain-treated skin (frog), R936
      - feeding effects, gastric antrum, G998
      - phorbol ester effects, urinary bladder (frog), F425
      - tracheal epithelium (horse), L459
      - vasopressin and deoxycorticosterone effects, cortical collecting duct, F147
      - transport properties, parotid acini, G1044
  - Sodium-adenosine cotransport, brush-border membranes, ileum, G504
  - Sodium-calcium antiporter, low extracellular calcium ion effects, MDCK cells, C19
  - Sodium-calcium exchange
    - contraction and, vascular smooth muscle, H409
    - energy dependence, vascular smooth muscle cells, C302
    - hepatocytes, G56
    - myocardial sarcolemma (trout), R453
    - process of, pancreatic islet cells, E844
  - Sodium-calcium ion exchanger, PTH, calcitonin, and cAMP effects, distal convoluted tubule, F408
  - Sodium channels
    - amiloride-sensitive, inner medullary collecting duct, F222
    - apical, cholinergic modulation of, colon (turtle), C668
    - blockade, estimatability of, model, H626
    - cardiac, temperature sensitivity of, C599
    - pH-dependent block of, nifedipine, H1178
  - Sodium chloride
    - absorption
      - basolateral potassium conductance and, C181
      - thiazide-sensitive, cortical collecting duct, F519
    - appetite
      - angiotensin and, R729
      - angiotensin-converting enzyme inhibitor and, R736
    - calcium and  $\alpha$ -adrenergic regulation, tracheal epithelial cells, L66
    - concentration, cerebral, mineralocorticoid escape and, F839
    - depletion, during development, taste response recovery after, R786
    - intake, high, hemodynamics of, H1629
    - portal hypertonic infusion, sodium absorption during, R1289
    - reflection coefficients, basolateral cell membrane, F594
    - renin secretion, macula densa control of, F186
    - response, glutamate and nucleotides, R420
    - transport
      - ANF and cGMP effects, inner medullary collecting duct, F258
      - proximal colon, endogenous prostanoid effects (pony), G62
  - Sodium-chloride cotransport, tracheal epithelium (horse), L459
  - Sodium-chloride exchange, apical surface, distal colon, C35
  - Sodium-chloride gradient, transport, intestinal brush-border membrane vesicles, G372
  - Sodium currents, G proteins, heartbeat regulation, H1621
  - Sodium fluoride, inositol phospholipid turnover induced by, protein kinase C effects, insulinoma cells, E73
  - Sodium-glucose cotransport, proximal straight tubules, F580
  - Sodium-glucose cotransporter, intestinal and renal, sequence homologies among, C605
  - Sodium gradient, influence on calcium transients, vascular smooth muscle, H409
  - Sodium hydrogen, pH control, vascular smooth muscle, C134
  - Sodium-hydrogen antiporter
    - electrogenic, antennal glands (lobster), F758
    - hydrogen ion extrusion mechanisms, outer medullary collecting duct, F628
    - low extracellular calcium ion effects, MDCK cells, C19
    - renal, regional localization, respiratory acidosis, F512
  - Sodium-hydrogen exchange
    - acidification and, myocardial ischemia, C169
    - $\alpha_2$ -adrenergic receptor regulation, cAMP-dependent mechanism, F977
    - basolateral plasma membrane vesicles, liver, neonate, G334
    - cell proliferation and, amiloride effects, AR42J pancreatic cell line, G842
    - essential activation of, HL-60 cells, C490
    - myocardium, C940
    - osmotic activation, endothelial cells, C640
    - parotid acini, G1044
    - pH regulation, outer medullary collecting duct cells, F902
    - pH response to AVP, A10 cells, C471
    - polarity and kinetics, kidney cells (opossum), C121
    - protein kinase C activation, inner medullary collecting duct cells, F666
    - role in respiratory acidosis, heart (ferret), H843
    - transepithelial acidification and, proximal tubules, C103
  - Sodium-hydrogen exchanger
    - characterization of, villus cells, ileum, G802
    - dopamine inhibition of, renal brush-border membrane vesicles, F297
    - putative, identification in renal brush-border membrane, F867
  - Sodium ion-hydrogen ion exchange, angiotensin II and, proximal tubular cells, F768
  - Sodium ions
    - intracellular activity, acidification and, myocardial ischemia, C169
    - low extracellular calcium ion effects, MDCK cells, C19
  - Sodium nitroprusside
    - ANF effects, renal, R1275
    - capillary permeability (frog), H1357
    - serotonergic neuron response to, R963

- Sodium oleate**  
exposure, gastric emptying and, G1031  
pancreatic secretion stimulated by, hormonal mechanism of, G960
- Sodium-potassium-ATPase**  
activity, inhibition, proximal tubule, F924  
adipocyte differentiation, C968  
aldosterone effects, kidney tubules, F40  
cortisol effects, opercular membrane (tilapia), R758  
decrease, maturation of reticulocytes and (sheep), C241  
epithelial cell, lung, developmental differences, L481  
high extracellular potassium effects, kidney cells, F227  
hypoxia and acidification, myocardium, C940  
ouabain effects, colonic myocytes, C402  
rubidium influx mediated by, nephron segment, F111  
sarcolemmal, oxygen radicals, neutrophils and, H1330  
sodium affinity of, along nephron, F246  
 $\alpha$ -subunit isoforms, stability, evolution (chicken), C619  
transport, lung, perinatal period, L30
- Sodium-potassium-chloride cotransport**  
cultured cells, retinal pigment epithelium, C29  
ethacrynic acid, renin secretion and, F539  
expression, oocytes, F383  
regulation, airway epithelium, C557
- Sodium-potassium pump: see Pump**
- Sodium-potassium transport, glucocorticoid stimulation of, collecting duct cells, F672**
- Sodium-proton antiporter, basolateral membrane, renal vesicles, acidification mechanisms, F458**
- Sodium taurocholate, pancreatic growth induced by, CCK mediation of, G86**
- Soleus muscle**  
adenosine, active hyperemia and, H1295  
myosin isoforms in, neonate, L116  
sodium-potassium pump, growth hormone and thyroxine effects, E278
- Solutes**  
interstitial dispersion, nucleus tractus solitarius, R1131  
modulation, osmolytes in MDCK cells, F653
- Somatomedins, work-induced growth and, skeletal muscle, E89**
- Somatostatin**  
amino acid disposal, glucagon role in, E225  
central effects, streptozotocin-treated, awake state, R405  
glucose utilization and, fetal, E506  
secretion, gastric, opioid receptor effects, G922  
voltage-dependent potassium currents, somatotrophs, C854
- Somatotrophs, voltage-dependent potassium currents, somatostatin effects, C854**
- Somatotropin, stimulation, IGF I gene expression, renal collecting duct, F474**
- Sorbitol**  
accumulation, MDCK cells, F653  
aldose reductase inhibition of, renal medulla, F733
- factors affecting, renal medullary cells, F847  
permeability at blood-retinal barrier, diabetes, R601
- Species differences, peripheral lung strip contraction, PAF and, L81**
- Spectral analysis, sympathetic nerve pairs, activity relations, R549**
- Spectrometry**  
gas chromatography-mass, isotopomer patterns in tracing glycogen synthesis, E757
- mass**  
calcium labeling of bone, E586  
measurement of albumin synthesis, E797
- Spectroscopy**  
near-infrared, cardiac oxygenation during ischemia and reperfusion, H1477  
nuclear magnetic resonance  
heart and brain nucleotide pools in shock, H1781  
myocardial energy metabolism during hyperemia, H1190  
sodium, heart during ischemia and reperfusion (ferret), H1767  
tricarboxylic acid cycle, heart, model, H987  
optical, microvascular oxyhemoglobin saturations, H1912
- Spermatogenesis, sustained hyperglycemia and, E881**
- Spermatogenic cells, energy metabolism, glycolytic component of, C660**
- Spermidine, lung, hypoxic pulmonary hypertension, L351**
- Sphincter of Oddi**  
CCK receptors on, G873  
myoelectric cycling of, time-series analysis of, G511
- Sphingosine, sodium transport and, urinary bladder (frog), F425**
- Spinal cord, hypothermia, regional blood flow and, H1649**
- Spine, chronic, enzymatic plasticity of gastrocnemius fibers, C507**
- Splanchnic nerve, stimulation, catecholamine secretion effects, H681**
- Starvation: see Fasting**
- Steroids**  
receptors: *see* Receptors  
sex, synthesis (Armenian hamster), R341
- Stilbene, fluorescent binding proteins, anion-transporting epithelia, C439**
- Stomach**  
contractions, radionuclide technique of visualization, G1063  
developing, gene expression in, G108  
distension, lower esophageal sphincter response, G380  
hydrogen-potassium-ATPase, ontogeny of, suckling, G913  
luminal glucose concentrations, normal conditions, G822  
mast cell deficiency, impaired gastric acid secretion, G41  
muscle cells, CCK and gastric receptor effects, G184  
smooth muscle cells,  $\beta$ -adrenoceptors in (guinea pig), G436  
somatostatin secretion, opioid receptor mediation of, G922  
stress ulcers, luminal polyamines in repair of, G584  
ventromedial hypothalamic lesions, gastric emptying and, R658
- Stomatocytes, potassium-chloride cotransport, swelling-activated, C960**
- Streptolysin O, pancreatic acini permeabilized with, amylase release and, G157**
- Stress**  
adrenal steroid receptor binding after, spleen and thymus, E405  
cardiovascular reactivity and, H248  
energy metabolism and blood flow during, brain, H269  
exercise and, hippocampus and striatum extracellular lactate, R773  
heat, skin vascular bed as potential blood reservoir, H1796  
mechanical, erythrocyte cation permeability and, C746  
oxidative  
protection against, dietary glutathione and, G524  
renal proximal and distal tubular cells, F338  
renin activity, progesterone-cortisol interaction in, R350  
wall, left ventricular, myocardial dysfunction and, H1086
- Strontium, smooth muscle contraction and, gallbladder, G1**
- Submandibular epithelial cells, potassium transport, muscarinic regulation of (scorpion), C340**
- Submandibular gland, carbachol-induced potassium efflux, VIP and forskolin effects, C904**
- Substance K, stimulation, gallbladder contraction, model, G838**
- Substance P**  
calcium and force, ileal smooth muscle (guinea pig), C150  
central effects, streptozotocin-treated, awake state, R405  
CGRP mediate motor response to capsaicin and, colon, G889  
contraction, tracheal smooth muscle (cattle), C258  
intracellular calcium and, acinar cells, tracheal submucosal glands, L345  
microinjection, intermediolateral nucleus, R357  
neurokinin A and, parietal cell function, G646  
pepsinogen release and, chief cells (guinea pig), G760
- Substrates**  
balance studies, splanchnic region role in, E36  
metabolic, adaptation to acidosis and, kidney, R277  
oxidation, insulin effects, E736  
preference, oxidative metabolism, early myocardial reperfusion, H317
- Succinate dehydrogenase, activity, chronic spine, C507**
- Suckling, gastric hydrogen-potassium-ATPase, ontogeny of, G913**
- Sugar, transport, sequence homologies, intestinal and renal, C605**
- Sulfate**  
exchange, bicarbonate, basolateral membrane, ileum, G807  
inhibition of phosphonoformic acid binding, renal brush-border membranes, F286
- Sulphydryl ligands, inhibition, active chloride transport, plasma membrane vesicles, gut (sea hare), R1111**



Sulfhydryls, contraction and, skeletal muscle membrane (frog), C709  
 Sulfonylurea, arterial smooth muscle tone and, C3  
 Superoxide  
   muscle enzymes and, acute phase response in exercise, R1214  
   production,  $\gamma$ -glutamyl and, alveolar macrophages, L102  
 Superoxide anions  
   cGMP-associated relaxation and, pulmonary artery, H1056  
   generation, perfused liver, G907  
   neutrophils, sarcolemmal sodium-potassium-ATPase and, H1330  
   production, phagocytosis and, macrophages, L87  
 Superoxide dismutase  
   catalase and, myocardial stunning, H889  
   cGMP-associated relaxation and, pulmonary artery, H1056  
   dilation, cerebral arterioles, H1171  
   endothelial dysfunction, cardiac ischemia, H1660  
   microvascular injury, ischemia/reperfusion-induced, model, G134  
   microvascular permeability and, PAF-induced, G859  
   permeability and edema and, hypertension-induced, H497  
   production of superoxide anion, liver, G907  
   reoxygenation, anoxic endothelium, C738  
   sodium, calcium, and function, heart, H137  
 Superoxide radicals, endothelial dysfunction, cardiac ischemia, H1660  
 Suprachiasmatic nucleus  
   entrainment of circadian phase, development and (opossum), E384  
   metabolic activities of (hamster), R1083  
 Supraoptic nucleus, sinoaortic denervation, cerebral, baroreceptors and metabolism, R305  
 Surfactants  
   pulmonary  
     alveolar type II cells, L206  
     clearance and recycling, L1  
     fibroblast-derived, type II cells, L247  
     metabolism, reactive oxygen species and, L328  
     regional type II cell development and, fetus and neonate, L359  
     reuptake, alveolar compartment, L238  
 Sweat gland, cystic fibrosis, chloride permeability in, C842  
 Swimming: *see* Exercise  
 Sympathectomy  
   ANP circulatory action and, renal, R1274  
   blood pressure and, awake state, H1337  
   chemical, noradrenergic and neuropeptide Y mechanisms in, R371  
 Sympathetic activity  
   graded central hypovolemia, hypoxemia and, H1197  
   regulation, venular pressure-diameter relations, H674  
   rostral ventrolateral medulla, R1063  
   stimulation of, corticotropin-releasing hormone and, R799  
   vasoactive drugs, serotonergic neuron response to, R963  
 Sympathetic nerves  
   activity  
     forebrain rhythm generators and, R572

hemorrhage effects in anesthesia, H1134  
   reflex responses, isometric muscle contraction, H1380  
   adrenergic denervation, diabetes mellitus, H55  
   cardiac, synchronized activity, awake state, R499  
   discharge, medullary unit activity and, R561  
   pairs, activity relations, R549  
   renal  
     activity, lower body negative pressure effects, F573  
     fetus, volume expansion effects (sheep), R1050  
 Sympathetic nervous system  
   capsaicin desensitization, atrophy in brown fat and, R324  
   central mineralocorticoid binding sites, hypertension, R1025  
   hypovolemia effects, duodenal bicarbonate secretion and blood flow, G179  
   norepinephrine kinetics, aging effects, E422  
   regulation, venular pressure-diameter relations, H674  
   temperature, norepinephrine turnover in brown fat, R90  
 Sympathoadrenal activity  
   catecholamine content and, platelets, E141  
   exercise, hypothalamic adrenoceptors in, R470  
 Synaptic mechanism, regulation, cardiovascular afferent input to solitary tract nucleus, H653  
 Systole, regional finite strains, left ventricle, H1409

## T

Tachycardia, supraventricular, ventricular dysfunction and (swine), H218  
 Tachykinins, stimulation, gallbladder contraction, model, G838  
 Tannic acid, platelet-bound fibrinogen, electron microscopy, C611  
 Taste: *see* Gustatory response  
 Taurine  
   brain, changes during anoxia (turtle), R376  
   cholate-induced bicarbonate-rich cholestasis and, liver, G453  
 Taurocholate  
   binding sites, ileal plasma membrane, G394  
   hepatic, bile salt effects, G205  
   kinetics and distribution, ileum and jejunum, G233  
 T-cells, activation, bronchial epithelial cell exposure to isocyanates and, L320  
 Teaching methods, lectures in physiology, S8  
 Temperature  
   acclimation  
     mechanisms of (fish), R237  
     metabolic response to, muscle (fish), R245  
     muscle contractile properties (fish), R231  
   changes  
     locomotor capacity (reptile, amphibian), R253  
     muscle function and, R259

heat stress, skin vascular bed as potential blood reservoir, H1796  
 lipopolysaccharide-induced fever, cytokines and, R126  
 myosin phosphorylation and, skeletal muscle, C432  
 norepinephrine turnover and, brown fat, R90  
   regulation, air and water (coypus), R1220  
   sensitivity, cardiac sodium channels, C599  
 Temperature, body  
   changes  
     muscle and locomotor performance with, R189  
     muscle contraction and, R197  
     muscle recruitment and function, R210  
     nervous system and, R191  
   circadian rhythms, entrainment of, bright light and sleep-wake schedules, R1189  
   core, circadian cycle of, juvenile rat, R270  
   deactivation rate and shortening velocity, contractile frequency and, R223  
   hand heating effects, E639  
   hibernation, testosterone and (squirrel), R760  
   hypoxic and hypercapnic responses and, awake state, R492  
   interleukin  $1\beta$  somnogenic activity, interleukin  $1\alpha$ , R439  
   pH and, muscle, R204  
 Testicles, dysfunction, fertility and, sustained hyperglycemia effects, E881  
 Testosterone  
   dysfunction, sustained hyperglycemia and, E881  
   hibernation and (squirrel), R760  
   insulin sensitivity and, muscle, E555  
 Tetracycline, bone resorption and, R679  
 12-O-Tetradecanoylphorbol-13-acetate  
   myofilament calcium sensitivity and, vascular smooth muscle, H2  
   sodium influx stimulated by, SV40-transformed WI-38 cells, C549  
 Tetraethylammonium, potassium channels and, gallbladder epithelium, C56  
 Tetraethylammonium chloride, potassium transport, muscarinic regulation, submandibular epithelial cell line (scorpion), C340  
 Tetrodotoxin, small bowel motility, G226  
 TGF- $\beta$ : *see* Feedback, tubuloglomerular  
 TGF- $\beta$ : *see* Transforming growth factor- $\beta$   
 Thapsigargin, calcium-dependent regulation, phosphate uptake, HeLa cells, F727  
 Theophylline, adenosine regulation, cerebral blood flow, H1703  
 Thermal dependence  
   locomotor capacity (reptile, amphibian), R253  
   muscle function, R197  
 Thermal injury, intracellular acidification and, A-431 cells, C727  
 Thermogenesis  
   capsaicin desensitization, atrophy in brown fat and, R324  
   corticosterone effects, refeeding after low calorie intake, E658  
   lateral hypothalamic lesions, after meals, isoproterenol and cold, E534  
   lipocortin effects, response to cytokines, R266

Thermogenesis (continued)

- nonshivering
  - atrophic state of brown fat, R61
  - glucose uptake, peripheral tissues, R1043
  - norepinephrine turnover and, brown fat, R90
  - thermoregulatory, obesity and, E11
  - thyroid hormones, epinephrine and insulin interaction, E305
- Thermopile, analysis, contracting heart muscle, H1601
- Thermoregulation, core temperature, circadian cycle of, juvenile rat, R270
- Thermotolerance, calcium and, monocytic line U-937, C77
- Thiazide, sodium-chloride absorption sensitive to, cortical collecting duct, F519
- Thiocyanate, fluorescent protein binding proteins, anion-transporting epithelia, C439
- Thirst: see Drinking
- Threonine
  - food intake and, prepyriform cortex, F709, R716
  - oxidation, quantitative partition (pig), E483
- Thrombin
  - increase in permeability mediated by, endothelial, enzymatic activity effects, L270
  - reoxygenation, anoxic endothelium, C738
  - vascular permeability induced by, lung, leukocyte repletion and, H149
- Thrombocytopenia, epidermal growth factor, serum and plasma sources for, R545
- Thromboxane
  - blockade, muscle afferent response to static contractions and, H745
  - coronary constriction to serotonin and, H1161
  - myogenic interaction, vascular adrenoceptors, H1126
  - oxygen uptake and capillary exchange, postprandial jejunal, G430
  - renal vascular response, genetic hypertension, F372
- Thromboxane B<sub>2</sub>, acid aspiration edema, phalloidin and, L378
- Thyroid
  - slices, intermediary metabolism, amiodarone and, E529
  - thyrotropin-releasing hormone degrading enzymes, ontogeny and distribution of, E787
- Thyroid hormone
  - brown fat metabolism and, obesity, E362
  - sodium-potassium pump and, muscle, E278
  - thermogenic effects, epinephrine and insulin with, E305
- Thyroid-stimulating hormone, amiodarone, intermediary metabolism and, E529
- Thyrotropin, serum and pituitary, lighting condition effects, E162
- Thyrotropin-releasing hormone
  - analogue, dorsal motor vagal nucleus, gastric effects of, G321
  - analogue RX 77368, gastric histamine release and, G599
- Thyrotropin-releasing hormone degrading enzymes, ontogeny of, E787

- Thyroxine, thermogenic effects, epinephrine and insulin with, E305
- Thyroxine 5'-deiodinase, capsaicin desensitization, atrophy in brown fat and, R324
- Tissue: see also specific type
  - connective, hyaluronan removal rate, H532
- TNF: see Tumor necrosis factor
- TPA: see 12-O-Tetradecanoylphorbol 13-acetate
- Trabecular bone, responses, 1,25-dihydroxyvitamin D<sub>3</sub> infusion, E715
- Trachea
  - epithelial cells, acrolein effects on eicosanoid release (bovine), L222
  - epithelium
    - mechanical removal, mast cells and granules in (ferret), L372
    - sodium and chloride transport (horse), L459
  - histamine stimulation, c-fos expression, L365
  - smooth muscle
    - increased myosin phosphorylation in, L53
    - maturation of acetylcholinesterase expression, L130
  - substance P contraction (cattle), C258
  - submucosal glands, acinar cells, intracellular calcium concentration, L345
- Tracheal gland, secretion,  $\alpha$ -adrenergic regulation of, L198
- Transforming growth factor- $\alpha$ 
  - development and, E256
  - PTH-related protein and, phosphate transport, renal cells, F929
- Transforming growth factor- $\beta$ , modulation, urokinase and PAI-1 expression, bronchial epithelial cells, L262
- Transplantation, liver denervation, evaluation of methods, G781
- Trauma, denervation, glutamine and, skeletal muscle, E148
- TRH: see Thyrotropin-releasing hormone
- Triazolam, injection, circadian period changes and (hamster), R514
- Tricarboxylic acid
  - cycle, prolonged exercise, muscle, C834
  - heart, model, H987
- Trichinella spiralis, infection, altered smooth muscle function in, intestine, G306
- Triglycerides
  - exogenous and endogenous, hepatocyte, serum factors and, G15
  - production, hepatic, diet effects, E177
- Tropoelastin, synthesis, lung, L13
- Tryptamine, bicarbonate current, apical membrane, corneal epithelium (frog), C215
- Tryptase, mechanical removal of airway epithelium, mast cells and (ferret), L372
- TSH: see Thyrotropin
- T. spiralis, infection, intestinal motor activity and, G693
- d-Tubocurarine, ganglionic, modulation of release by muscarinic and nicotinic receptors, R288
- Tubuloglomerular feedback: see Feedback
- Tumor necrosis factor
  - endothelial cell injury induced by, enhancement by cycloheximide, L123
  - hepatic triglyceride production stimulated by, diet effects, E177

- infusion, neutrophils, hypochlorous acid production and, L276
- interleukin 1 $\beta$  and, lipopolysaccharide fever, R724
- plasma profile of, fever-inducing doses of lipopolysaccharide and, R126
- production, macrophages, virus-induced alterations in, L396
- Tumor necrosis factor- $\alpha$ 
  - interferon- $\gamma$  and, prolactin release, E672
  - plasma inhibitor of, endotoxin effects, R993
- Turpentine, injury, protein metabolism after, model, E763
- Tyramine
  - adrenergic and cholinergic responses, bronchial arteries, H156
  - blood pressure and, awake state, H1337
  - mechanisms, guanethidine-sympathectomy, R371
- Tyrosine, phenylalanine flux and conversion to, E835
- Tyrosine kinase
  - activation, high-fat-sucrose diet effects, E111
  - gastrin induction of ornithine decarboxylase and, colonic mucosa, G626
  - insulin receptors, mammary gland, E828

U

- Ulcer
  - gastric, nonsteroidal anti-inflammatory drugs, G462
  - hemorrhagic shock, platelet-activating factor and, G140
  - stress, gastric mucosa, luminal polyamines in repair of, G584
- Umami substances, taste nerve responses, R420
- Umbilical cord, vasculature, response to angiotensin II and norepinephrine (sheep), H197
- Urea
  - arginine synthesis, nephron, F916
  - <sup>14</sup>C-labeled, multiple indicator dilution studies, G32
  - production
    - glucagon-induced, bradykinin effects, E239
    - glucagon role in amino acid disposal, E225
  - vasopressin-regulated transporter, renal inner medullary collecting duct, F393
- Uremia, hyperparathyroidism in, phosphorus restriction effects, F432
- Urinary bladder
  - eicosanoid excretion and, urine, F859
  - fluorescent analogue for hydrin 1, E524
  - fluorescent vasotocin receptor, internalization of (toad), C462
  - micturition, diuresis and, R637
  - organic anion transport, sodium-coupled (crustacean), R147
  - sodium transport, phorbol ester effects (frog), F425
- Urinary concentrating mechanism
  - vasopressin-regulated urea transporter, inner medullary collecting duct, F393
- water transport, descending vasa recta, F688
- Urine
  - flow, eicosanoid excretion, bladder and, F859

- osmolality, vasopressin and, awake state, R690
- tetracycline in, measurement of bone resorption, R679
- Urodilatin, renal and cardiovascular function, modification of, men, F832
- Urodynamics, diuresis and micturition, regulation of renal pelvic pressure, R637
- Urogastone, sources, serum and plasma, R545
- Urokinase
- expression, TGF- $\beta$ , modulation of, bronchial epithelial cells, L262
  - receptors: *see* Receptors
- Uterine arteries, pregnancy, protein content and myosin light chain phosphorylation, C484
- Uterine cells, prostaglandin, vasotocin or inositol production, calcium release and (chicken), E872
- Uterus
- blood flow: *see* Blood flow
  - quiescence, pregnancy effects (guinea pig), E57
  - vasculature, response to angiotensin II and norepinephrine (sheep), H197
- V**
- Vagal afferents, mechanoreceptor modulation, endogenous respiratory rhythm, R898
- Vagotomy, CCK and, control of pancreatic secretion, G198
- Vagus nerve
- cardiac, separate effects, H536
  - control, interbreath interval (African lungfish), R139
  - dorsal motor nucleus of
    - control of lower esophageal sphincter pressure, G899
    - TRH analogue injection, gastric effects of, G321  - electrical stimulation, gastric mucosal blood flow response to, G1037
  - hypovolemia effects, duodenal bicarbonate secretion and blood flow, G179
  - postganglionic, parasympathetic pathways, H1504
  - stimulation, diminished cardiovascular responsiveness to, R842
  - tonic and phasic neurons, bronchial ganglia (guinea pig), L403
- Vasa recta, descending, resistance to transport of water, F688
- Vascular bed, systemic, responses to vasoactive intestinal contractor peptide, H1152
- Vascular leakage, neutrophil-mediated, leukocyte elastase inhibitors, H1288
- Vascular system, growth regulation, R393
- Vasculitis, leukotriene stimulation, neutrophil adhesion, mesangial cells, F809
- Vasoactive drugs, serotonergic neuron response to, R963
- Vasoconstriction
- adenosine, inosine potentiation of, H759
  - after autonomic blockade, ANP infusion and, awake state, R813
  - cholinergic regulation, coronary blood flow (swine), H109
  - coronary
    - neuropeptide receptors and, H174
    - pathway, H917  - coronary resistance, nondefatted albumin and, saline-perfused heart, H1606
  - endogenous, aortic cross-clamping and, H68
  - endothelin effects, cerebral microvasculature, H1688
  - fetoplacental response to, angiotensin II and  $\alpha$ -agonist (sheep), H464
  - hypoxic, superoxide anion inhibition of, pulmonary artery, H1056
  - hypoxic pulmonary
    - increased left atrial pressure, H93
    - PEEP effects, H697
    - peptidoleukotrienes and, H751
    - tension and, arteries, H281  - neuropeptide Y receptors, distinction in vivo and in vitro, E131
  - pulmonary, flow-independent, halothane and, H74
  - renal
    - protein kinase C role in, C421
    - vasopressin and, awake state, R690  - smooth muscle, arterial, C3
  - systemic, endothelin effects, newborn (pig), H1613
- Vasoconstrictor agents, infusion, regional autoregulatory response during, awake state, H1270
- Vasoconstrictor agonists, afferent arteriolar responses to, prostaglandin effects, F157
- Vasodilation
- adenosine
    - inosine potentiation of, H759
    - thoracic aorta, H62  - adrenergic, coronary circulation, H1575
  - cerebral, endothelium-dependent, membrane hyperpolarization and, H668
  - EDRF role in, at birth, H1921
  - endothelin-induced, H1835
  - flow-mediated, *N*-acetyl-L-cysteine and, H804
  - hypoxia-induced, superior mesenteric artery, G605
  - increased CSF prostanooids and, recombinant interleukin 1 $\alpha$  (piglet), H1486
  - limb, heat-induced, dehydration (baboon), R1139
  - metabolic, cerebral arteries, H902
  - nicotine-induced, muscle, epinephrine release effects, H1718
  - pulmonary
    - endothelin 1 and, H48
    - endothelin effects, newborn (pig), H1613  - renal, dopamine-2 and, F793
  - smooth muscle, arterial, C3
  - VIP antagonist and, colon, G253
- Vasodilator nerve, stimulation, cerebral arteries, mechanism of response, H1511
- Vasopressin: *see also* Antidiuretic hormone
- adenosine interaction with, inner medullary collecting duct, F679
  - antidiuretic action, modulation by renal  $\alpha_2$ -adrenoceptors, F1
  - arginine
    - cGMP and ANF synthesis, inner medullary collecting duct, F535
    - CSF composition and, hyperosmolar state, R1250
    - endocrine and fluid-balance responses to fluid loss (sheep), R745
    - fluid excretion after cardiac denervation, R70  - pH response to A10 cells, C471
  - prolonged hypoxemia and (sheep), R703
  - rapid hemorrhage and, fetus, H567
  - stimulation of adenyl cyclase and phospholipase C, RIMCT cells, C693
  - subnormal levels, antidiuretic effects of, R53
  - binding sites, development of hypertension and, R1025
  - blood volume, baroreflex response to, R792
  - during hemorrhage, sinoaortic denervation and, R305
  - endosomes induced by, water channels, kidney, C920
  - fluorescent analogue for hydrin 1, E524
  - hypoxemia and hypercapnic acidosis, renal vascular changes, awake state, R690
  - modulation, osmolytes in MDCK cells, F653
  - osmoregulation of
    - diabetic ketoacidosis, E723
    - median preoptic nucleus (sheep), R593
    - oxytocin and, during fever, brain, R1056
    - positive inotropic action of, endocardial endothelium in, H1148  - receptors: *see* Receptors
  - regulation of plasma ANF, afterload, awake state, H1736
  - secretion, splanchnic control of, awake state, E19
  - sodium-calcium exchange, hepatocytes, G56
  - sodium conductance produced by, cAMP mediation of, apical membrane, cortical collecting duct, F823
  - sodium transport and, urinary bladder (frog), F425
  - synergistic actions of, cortical collecting duct, F147
  - urea transporter regulated by, inner medullary collecting duct, F393
  - vasopressin and, baroreceptor effect, R618
  - water flow induced by, PGE<sub>2</sub> effects, cortical collecting ducts, F318
- Vasotocin
- phenylephrine actions and, hepatocytes (teleost), E644
  - prostaglandins and, calcium release and inositol production, uterine cells (chicken), E872
- Ventilation, controlled, halothane anesthesia effects, H74
- Ventilatory control
- interbreath interval (African lungfish), R139
  - receptor interactions in modulation of, R911
- Ventricular cells: *see* Myocytes, ventricular
- Ventrolateral medulla, microinjection of ANF, cardiovascular effects of, R32
- Verapamil
- cell volume regulation, proximal tubule, F950
  - hypoxia effects, pulmonary and mesenteric arteries, H281
- Veratrine, intracoronary, renal responses to hypotension and, awake state, F18
- Video
- interactive
    - membrane potential simulation program, S15

# SUBJECT INDEX TO VOLUME 259

## Video (continued)

- vs. live animals, teaching methods, S11
- Villus cells, sodium-hydrogen exchanger in, ileum, G802
- Vinblastine, skeletal muscle dysfunction, ischemia-reperfusion, H1809
- VIP: *see* Peptides or Polypeptides, vasoactive intestinal
- Vitamin D
  - calcium and phosphorus absorption independent of, intestine, G631
  - calcium binding proteins dependent on, physiology and biochemistry of, F195
  - developmental changes, spontaneous hypertension, F104
  - hypercalcemia induced by, sodium-chloride reabsorption and, thick ascending limb, F122
- Vitamin D<sub>3</sub>
  - 1,25-dihydroxy-
    - inhibition of 25-hydroxyvitamin D<sub>3</sub>-1-hydroxylase, kidney, E272
    - regulation in lactation, E665
    - regulation of intestinal alkaline phosphatase, G93
    - responses of trabecular and cortical bone, E715
    - zinc and phosphorus depletion effects, E319
  - 25-hydroxy-, renal activity, phosphate transport and, E814
- Volume: *see also* Blood volume
  - cell
    - potassium chloride cotransport, red cells, C960
    - regulation, dihydropyridine-sensitive, proximal tubule, F950
    - water permeability, inner medullary cortical duct, F986
  - colonic, inferior mesenteric ganglion (guinea pig), G490
  - expansion
    - ANF release and, high-output heart failure, H1374

- angiotensin II and TGF in, F565
- ANP levels after atrial appendectomy, R1017
- clip models of, differential transport in, F480
- renal sympathetic nerves in response to, fetus (sheep), R1050
- fixed hemorrhage, skeletal muscle, H190
- fluid
  - extracellular, hypertension with angiotensin II, R1012
  - high-salt intake effects, H1629
- intravascular, displacement, ANF influence (pig), H1595
- overload, left ventricular, captopril in, H796
- plasma, sodium restriction and, G498
- regulation, potassium channel activation by hypotonic shock, F348
- Vomiting, erythromycin and, G355

## W

- Water
  - absorption, meal-stimulated, jejunum, G402
  - excretion
    - $\alpha_2$ -adrenoceptors in control of, F1
    - serotonin effects, kidney, R1267
  - handling, cecum, G786
  - intake
    - cerebral sodium concentration and, R741
    - neuropeptide and peptide effects, fourth ventricular, R317
  - membrane permeability to, fluorescent vasotocin receptor, bladder (toad), C462
  - reabsorption, angiotensin II role in glomerulotubular balance, F72
  - temperature, regulation (coypus), R1220
  - transport
    - antidiuresis, kidney, C920
    - resistance of descending vasa recta to, F688

- vasopressin and deoxycorticosterone effects, cortical collecting duct, F147
- unstirred layer, micell dissociation and fatty acid diffusion, G671

## Weight

- body
  - candidate genes in regulation of (monkey), R1148
  - muscle, sodium-potassium pump and, E278
  - spontaneous obesity in aging males, model, R1117
  - ventromedial hypothalamic obesity syndrome, R829
  - cycling, susceptibility to dietary obesity, R1096
- White blood cells: *see* Leukocytes
- WI-38 cells, SV40-transformed, bradykinin response in, C549

## X

- Xanthine dehydrogenase, conversion to oxidase, cerebral ischemia, H1655
- Xanthine oxidase
  - adenine nucleotide depletion and, endothelial cells, C883
  - lung injury, VIP effects, L151
  - microvascular injury, ischemia/reperfusion-induced, model, G134
  - neutrophils, sarcolemmal sodium-potassium-ATPase and, H1330
  - oxygen metabolites derived from, surfactant metabolism and, L328

## Y

- Yohimbine, regulation of sodium chloride, tracheal epithelial cells, L66
- Yttrium, blockage, calcium currents, pituitary cells, C515

## Z

- Zinc, depletion, 1,25-dihydroxyvitamin D<sub>3</sub> and, E319



# Author Index to Volume 259

- Aalkjær, C., H14  
Aalto, T. K., C883  
Abassi, Z., R84  
Abman, S. H., H1921  
Abraham, W. M., L136  
Abrahams, C., L294  
Abrahamsson, H., G348  
Abumrad, N., G327  
Abumrad, N. N., E342  
Acad, B. A., H872  
Aceto, J. F., H324, H610  
Acheson, K. J., E305  
Adair, T. H., R393  
Adams, D. J., H997  
Adams, H. R., H504  
Adamson, S. L., H1247  
Adelstein, R. S., C258  
Adeyemo, O. M., R427  
Adi, S., E177  
Adibi, S. A., E463  
Ahearn, G. A., F758, R1181  
Ahmed, A., E284, L136  
Akin, G. L., H1440  
Akins, V. F., R507  
Akiyama, T., R499  
Albers, F. J., F727  
Albrecht, F., F297  
Albrecht, R. F., E729  
Alda, J. O., C570  
Aldred, A. R., G340  
Alemayehu, A., G430  
Alexander, E. A., F666  
Alexander, R. W., G173  
Alexander, S., L378  
Alfaro, A. A., R376  
Allegria, L., L320  
Allen, D. E., R1274  
Allen, J. C., C134  
Allessie, M. A., H300, H1015, H1254  
Allon, M., F233  
Alpern, R. J., F587, F628  
Alpers, D. H., G93, G618  
Alsip, N. L., H728  
Alvarez, R. J., F704  
Alway, S. E., C92  
Amiel, C., F816  
Ammon, H. V., G745  
Amruthesh, S. C., H1171  
Anand, R. S., R1126  
Anania, V., F304  
Andersen, J. L., R53  
Andersen, L. J., R53  
Andersen, S. E., R313  
Anderson, F. L., H1559  
Anderson, S. E., C940  
Anderson, W., H333  
Anderson, W. P., R813  
Ando, K., R1012  
Andon, N., H804  
Andre, P., H1427  
Andresen, M. C., H1307  
Andriantsitohaina, R., H1427  
Andries, L. J., H1148  
Annibale, D. J., C484  
Anthony, D. C., G781  
Anthony, T. L., G490  
Antonsson, J. B., G519  
Anversa, P., H1086  
Anwer, M. S., G453  
Aperia, A., F924  
Appel, R. G., E312  
Ardailou, R., F619  
Arduini, A., C995  
Arendshorst, W. J., F372, F529  
Arendt, E. A., R521  
Arentzen, C. E., H1730  
Arfors, K.-E., H190, H1288  
Argent, B. E., C752  
Argenzio, R. A., G62  
Arkinstall, S. J., E57  
Armour, J. A., H1108, H1207, H1365  
Armstead, W. M., H1230  
Arner, P., E561  
Arogyasami, J., E266  
Aronson, P. S., G666, G802  
Arruda, J. A. L., F512  
Arts, T., H300  
Arvidsson, S., G564  
Asai, T., H264  
Aschner, J. L., L270  
Aschner, M., L270  
Astley, C. A., R943  
Atkinson, J. M., G453  
Augustijn, C. H., H300  
Ausiello, D. A., C920  
Avanzino, G. L., R32  
Aversano, T., H603  
Avogaro, A., E890  
Aw, T. Y., G530  
Ayala, A., R663  
Aydelotte, M. R., H1681  
Azhar, S., E706  
Azhari, H., H1492  
Ba, Z. F., R645  
Baan, J., H1419  
Babji, P., E148  
Baena, R. C., H1752  
Baertschi, A. J., E19, H735  
Bailey, J. W., E890  
Baily, R. G., E261  
Baines, A. D., F80  
Baker, E., G611  
Baker, K. M., H324, H610  
Baker, R. R., L328  
Balasse, E. O., E770  
Ball, R. O., E835  
Ballard, P. L., L283  
Ballermann, B. J., C471, F138, F809  
Balleve, O., E483  
Ballmer, P. E., E797  
Bandini, L. G., E233  
Banet, M., R1  
Bangsbo, J., E170  
Bankir, L., F916  
Banks, S. M., H1440  
Banks, W. A., E1  
Baracos, V. E., C526  
Barajas, L., F503  
Barber, J. D., R1243  
Barker, P., III, G32  
Barker, P. E., C1010  
Barlet-Bas, C., F246  
Barman, S. M., R549, R561, R572  
Barnes, P. J., L108  
Barr, H. A., L238  
Barré, H., R1220  
Barres, C., H1337  
Barrett, E. J., E477  
Barrett, T. A., G947  
Barron, K. W., H720, H1718  
Barron, W. M., F293  
Barry, P. H., S15  
Barry, W. H., H962  
Barstow, T. J., R163  
Basbaum, C., L38  
Baskin, D. G., E517  
Bass, J. B., H144  
Bass, P., G593  
Bassett, A. L., H1044  
Bastidas, J. A., G402  
Bastie, M. J., G842  
Bastin, J., F895  
Batey, R. G., G611  
Battaglia, C., F545  
Battaglia, F. C., E492  
Battarbee, H. D., G48  
Baudet, S., H1803  
Bauer, R. M., R606  
Baum, M., F458  
Bauman, R. P., H1477  
Baumbach, G. L., H560  
Baumgärtl, H., F910  
Bautista, A. P., G907  
Baxter, D. C., G631  
Bayer, A. L., E751  
Baylis, C., F945  
Baylis, P. H., R21  
Bealer, S. L., R507  
Beasley, D., R38  
Beaven, M. A., G655  
Béchet, D. M., E822  
Bechtel, P. J., E89, F251  
Becich, M. J., G618  
Beck, L. D., H1518  
Becker, J. M., G511  
Beckett, S. D., S11  
Beckman, B., C427  
Beckman, B. S., C849  
Behar, J., G239  
Behm, L. L., H504  
Belardinelli, L., H1471  
Benarroch, E. E., R371  
Bender, C., C19  
Benetti, A. F., R1236  
Benjamin, S., G899  
Bennet, W. M., E185  
Bennett, A. F., R189, R253, R986  
Bennett, L. E., G99  
Bennett, T., H448, R405  
Benos, D. J., C1, C660  
Benstein, J. A., F598  
Benzi, R. H., R61  
Bereiter, D. A., R1236  
Bergaglio, M., R32  
Berger, A. J., L24  
Bergman, R. N., E378  
Bergstedt, S. E., G386, G709  
Berisha, H., L151  
Berkofsky, J., R277  
Berman, M. R., H1566  
Bernard, C., G191  
Bernard, G., G191  
Berne, R. M., H62, H1471, H1637  
Bers, D. M., H951  
Bertin, R., R90  
Bertorello, A., F924  
Bertozzi, P., L432  
Bertram, H., F910  
Bessegir, K., F613  
Best, J. D., E141  
Betcher, S. L., G504  
Betto, R., C144  
Bevan, J. A., H23  
Bevan, M. G., L95  
Beverly, J. L., R627, R709, R716  
Beyar, R., H1492  
Bhaskar, K. R., G681  
Biagi, B. A., C515  
Biancani, P., G239  
Bidani, A., C586  
Bie, P., R53, R313  
Bier, D. M., E677  
Bikle, D. D., E715  
Billett, G., G239  
Biolo, G., E96  
Birnbauer, L., H264, H820  
Björntorp, P., E555  
Blachier, F., E123  
Black, R. M., R658  
Blackard, W. G., E451  
Blain, P. L., G639  
Blair-West, J. R., R729, R736, R741  
Bland, R. D., L30, L481  
Blank, M. A., G252  
Blasberg, R. G., H1278  
Blaustein, M. P., H281, H409  
Blennerhassett, P., G306  
Bliss, C. R., E568  
Blizzard, K., H1551  
Bloesch, D., R993  
Bloodworth, C. R., R1156  
Blostein, R., C241  
Blumel, K. M., H1504  
Blumberg, J. B., R1214  
Boass, A., E665  
Boden, G., E225  
Bodine, R. C., H1518  
Bodkin, N. L., R612  
Bogardus, C., E650  
Bohlen, H. G., G282, H674  
Bohr, D. F., H1  
Boija, P. O., E692  
Bolivar, J. J., C978  
Bolli, R., H889, H1901  
Bolufier, J., G775  
Bonadonna, R. C., E736  
Bonham, A. C., H917  
Bonjour, J.-P., F389, F929  
Bonventre, J. V., C77, F326  
Borgström, P., H190  
Borić, M. P., F752  
Borle, A. B., C119  
Borle, C. J., C19  
Boron, W. F., F269  
Bortz, J. D., F251  
Borzak, S., H973  
Boscarato, M. T., E96  
Bosnjak, Z. J., R288  
Boublik, J. H., E131, H174  
Boucher, R. C., C557  
Bouma, P., H1606  
Bourey, R. E., E593  
Bourgouin, P., F104  
Bova, S., H409  
Bowman, B. B., G524, G530  
Bowman, L., L57  
Boyd, J. J., E111  
Boyer, J. L., G727  
Boyle, C. C., III, G519  
Brace, R. A., H567, R1281  
Bracy, D., E195  
Bradbury, M., R601  
Bradley, L. M., H1613  
Bradley, W. E., H68  
Brady, H. R., F809

# AUTHOR INDEX TO VOLUME 259

- Brami, M., F104  
Branch, C. E., S11  
Brands, M. W., R585, R973  
Brango, C., F945  
Brantl, V., G443  
Branum, G. D., G781  
Brasitus, T. A., G571  
Bray, G. A., R799  
Brayden, J. E., H668  
Brecher, P., H442  
Bredle, D. L., H68  
Brenner, J., R485  
Brennan, D. P., F444  
Brenner, B. M., C471, F138, F809  
Brenner, R. M., F653  
Breslow, M. J., H681  
Breyer, J. A., F553  
Breyer, M. D., F318, F553  
Bridges, R. J., C358  
Briggs, J. P., F186, F565  
Brimouille, S., H93  
Broberg, S., C834  
Brock, T. A., C640  
Brockway, P. D., G940  
Brody, M. J., H917, R955, R1025  
Broge, C. W., H1759  
Brommage, R., G631  
Bronson, F. H., R25  
Brookins, J., C427  
Brooks, F. P., G321  
Brooks, S. V., R259  
Brosnan, J. T., E437  
Brosnan, M. E., E437  
Brotten, T. P., H1575  
Brotherton, A., L426  
Brown, A. M., H820, H1621  
Brown, D., C279, C286, C920  
Brown, J., F26, F605  
Brown, M. R., H174  
Brown, P. I., E256  
Brown, S. A., F739  
Brown, S. E. S., C586  
Brownlee, R. D., H1247  
Bruck, R., G727  
Brugada, J., H1015  
Brunengraber, H., E757  
Bruschke, A. V. G., H1419  
Brusilow, S. W., H34  
Brutsaert, D. L., H1148  
Bruttig, S. P., H190  
Bryan, R. M., Jr., H269  
Bub, A., F832  
Buchan, V., E797  
Buddington, R. K., G544, G720  
Bueno, L., G155  
Buga, G. M., H1813  
Buja, L. M., H582  
Bukowiecki, L. J., R1043  
Buku, A., C462, E524  
Buñag, R. D., R842  
Burakoff, R., G753  
Burg, M. B., F847  
Burger, A. G., E305  
Burke, E., G258  
Burke, E. P., C402  
Burke, J. F., E36  
Burke, T. J., L451  
Burkhoff, D., H1142  
Burkholder, T., S4  
Burnashev, N., H1609  
Burnell, E. E., R1126  
Burnett, J. C., Jr., F312, H982, R84, R97  
Burnham, C. E., F383  
Burnol, A. F., E828  
Burton, M. B., G753  
Bushinsky, D. A., E586  
Busija, D., H662  
Busija, D. W., H1230, H1486  
Butler, C. K., H1108, H1365  
Butler-Browne, G. S., L116  
Butters, C. A., H1681  
Buttrick, P., H866  
Butzner, J. D., G940  
Byrns, R. E., H1813  
Cadenhead, A., E483  
Cady, A. B., R439  
Cain, S. M., H68  
Cala, P. M., C940  
Calabrò, F., L320  
Calaresu, F. R., R32, R357  
Calder, A. G., E483, E797  
Calonge, M. L., G775  
Camara, J., E117  
Cameron, D. F., E881  
Campbell, D. L., H352, H370  
Campbell, R. W., H735  
Campbell, T., F297  
Campbell, W. B., H582  
Campbell-Thompson, M. L., R1259  
Candia, O. A., C215  
Cannon, J. G., R1214  
Cantiello, H. F., C531  
Cantin, M., E246  
Capasso, J. M., H1086  
Capodagli, L. C., C897  
Cappelli-Bigazzi, M., H1161  
Capponi, A. M., C77  
Carabello, B. A., H218  
Cardelli, J. A., G709  
Cardinal, R., H1365  
Carey, F., R266  
Carey, H. V., R385  
Carey, R. M., F660, F793, F882, R690  
Carlson, D. E., H735  
Carlson, S., G165  
Carmichael, F. J., G1010  
Carmines, P. K., F157  
Carosi, S. L., F46  
Carpéné, C., E80  
Carpenter, T. O., E814  
Carr, M. E., Jr., H1527  
Carraro, F., E470  
Carraway, R. E., F539  
Carson, J. J., C687  
Cartee, G. D., E685  
Carter, K., G564  
Cartmill, D., E266  
Caruso, M., E542  
Cassano, G., R1181  
Casteel, C. F., S8  
Castell, D. O., G955  
Castellini, M. A., R1086  
Castle, J. D., G70  
Cato, R. K., R447  
Cavero, P. G., F312  
Caverzasio, J., F929  
Cecoldo, S., C144  
Cereijido, M., C978  
Cernacek, P., H1928  
Cerutti, C., H1337  
Chabala, J. M., E586  
Chalmers, J., R70  
Chamberlain, K. G., E141  
Chandramouli, V., E335  
Chang, E. B., G947  
Chang, S., R1096, R1103  
Chang, S.-W., L451  
Chang, T.-M., G960  
Channing, M., H1278  
Chansel, D., F619  
Chaplin, S. B., G481  
Chapman, D. L., L481  
Chapman, G. A., L136  
Chapman, H. A., L432  
Chariot, J., G198  
Chatfield, B. A., H1921  
Chatton, J.-Y., F613  
Chatziantoniou, C., F372  
Chaudry, I. H., R645, R663  
Chauncey, J. B., L73  
Chávez de Ramirez, B., C978  
Chayvialle, J. A., G191  
Chen, B. B., H74  
Chen, C., C854  
Chen, J.-S., F18  
Chen, L., F147  
Chen, S., H835  
Chen, X., H1674  
Cheng, L., F444  
Cheng, Z.-Q., C279  
Chentoufi, J., G842  
Chernin, M. I., H324  
Cherrington, A. D., E195  
Cherry, P. D., H1056  
Cheung, C. Y., H567  
Cheung, L. Y., G998  
Cheval, L., F111, F246  
Chevalier, R. L., F660, F793  
Chey, W. Y., G960  
Chiba, T., E73  
Chien, C.-Y., H1718  
Chien, K. R., H582  
Chilian, W. M., H1063  
Chiverton, S., G306  
Cho, D. S., C490  
Chobanian, A. V., H442  
Chodobski, A., R1250  
Choi-Kwon, S., E19  
Chorev, M., F444  
Chorro, F. J., H1015  
Chou, C. C., G430  
Chou, S.-Y., F645  
Christensen, G., H1595  
Chu, A., H340  
Chung, G. G., F539  
Cianflone, K., H1928  
Cieslinski, D. A., F438  
Cimini, C. M., H346  
Cingolani, H. E., H843  
Cirino, N. M., L396  
Claesson, H.-E., L255  
Clancy, J. P., L410  
Clark, J. D., F977  
Clark, J. W., H352, H370  
Clark, K. E., H197  
Clark, R. A. F., F279  
Clark, R. B., H370  
Clarke, L. L., G62  
Classen, M., G646  
Claus, W., L230  
Claycomb, W. C., H1826  
Clemens, R. A., G720  
Clemson, B., E261  
Cleveland, J. C., Jr., R1148  
Clifford, C. B., R119  
Cline, G., E335  
Clone, J. N., E451  
Cloutier, M. M., C450  
Coady, M. J., C605  
Cobb, F. R., H340  
Cobelli, C., E890  
Cochineas, C., F480  
Codina, J., H264, H820  
Coe, J. E., R341  
Cogan, M. G., F72, F451  
Cohen, R. A., H55, H442  
Coimbra, T. M., F438  
Cole, D. J., H211  
Cole, F. E., C427  
Cole, J., F485  
Cole, T., G340  
Cole, W. C., H712  
Coleman, G. M., H1022  
Coleman, L., C752  
Collado-Escobar, D. M., G655  
Collins, S. M., G306, R1090  
Colman, R. F., C862  
Colman, R. W., C862  
Colombato, L. A., G21  
Coloso, R. M., E443  
Compton, A. M., H448  
Comte, L., F104  
Condon, R. E., G226  
Conklyn, M., C577  
Connacher, A. A., E185  
Connelly, C. A., R879  
Conover, K. L., R658, R1090  
Consoli, A., E677  
Constantinou, C. E., R637  
Contreras, I., E111  
Contreras, R. G., C978  
Convertino, V. A., R792  
Conyers, G., C577  
Cook, J. S., C84  
Cooke, J. P., H804  
Cool, D. R., C196  
Cooper, D. M., R163  
Copello, J., R172  
Corbett, S. W., E534  
Corcoran, J. J., C161  
Corp, E. S., R317  
Corpus, V. M., E685  
Corson, M. A., C258  
Corthorn, J., F752  
Costa, D. P., R1086  
Costa, L. E., C654  
Cota, G., C949  
Cotsonis, G. A., R1117  
Coulson, R., C897  
Coulter, C. L., R703  
Cowan, C. L., H109  
Cowles, V. E., G420, G693  
Cowley, A. W., Jr., H258, H1270, H1629  
Cox, K. L., G873  
Cox, M. R., G380  
Cox, T. C., R936  
Coy, D. H., G468  
Coyne, D. W., F698  
Cragoe, E. J., Jr., C134, C640, F977, G842  
Cramer, E., C577  
Crawford, F. A., H218  
Crockford, T., R231  
Cronin, M. J., E672  
Crothers, J. M., Jr., G913  
Crouch, E., L159  
Crowell, R. E., H1325  
Crum, R. L., H174  
Cryer, H. G., H728  
Cuber, J. C., G191  
Cucchiari, G., G781  
Cui, J., R324  
Culp, D. J., L198  
Cunningham, S., C1010

# AUTHOR INDEX TO VOLUME 259

- Cupples, W. A., F715  
 Currie, R. W., H424  
 Curtiss, S. W., L13  
 Cybulsky, A. V., F326  
 Czaja, J. F., H1613  
 Czartolomna, J., H751
- Daan, S., R333  
 Dahhan, A., F645  
 Dahm, M., H457  
 Dai, L.-J., C521  
 D'Alecy, L. G., R126  
 Dalsky, G. P., E155  
 Daly, R. N., E131  
 Danforth, E., Jr., E66  
 Daniel, E. E., L304  
 Daniels, F. H., F372, F529  
 Danner, R. L., H1440  
 Danthuluri, N. R., C640  
 D'Anza, J. J., E792  
 Daoud, M. J., L116  
 Darnall, R. A., R1063  
 Dartt, D. A., G274  
 Das, A. M., H1264  
 Das, D. K., H1101  
 d'Attellis, N. P., E770  
 Daulat, G., H706  
 Davidenko, J. M., H290  
 Davies, P. F., H804  
 Davis, C. A., III, H1006  
 Davis, D., E261  
 Davis, D. W., E104  
 Davis, J. D., R1228  
 Davis, M. E., C92  
 Davis, M. J., H1063, H1890  
 Davis, W. B., L276  
 Davison, J. M., R21  
 Dawson, D. C., C181, C668  
 Dayer, J.-M., R993  
 de Abajo, F. J., C527  
 Deacon, R. W., E457  
 Deale, O. C., H1544  
 Deayton, J. M., R703  
 De Bruin, L. A., R773  
 Deems, R. O., E457  
 De Francquen, P., H93  
 DeFronzo, R. A., E736  
 de Hemptinne, A., C169  
 de Jong, J. W., H759  
 De Jonge, H. R., G410  
 DeJoseph, M. R., E104  
 De Kreutzenberg, S. V., E96  
 Delcarpio, J. B., H1826  
 Delcore, R., Jr., G998  
 De Lisle, R. C., G157  
 Dellsperger, K. C., H909  
 Delvaux, M., G842  
 De Marco, F., R90  
 De Mello Aires, M., F357  
 Demigne, C., E614  
 Demontis, M. P., F304  
 Dennis, V. W., F727  
 Dent, J., G380  
 Denton, D. A., R729, R736, R741  
 De Roo, M., G1062  
 Deschamps, A., H1796  
 Deshon, G. E., R119  
 De Smet, J.-M., H93  
 Des Rosiers, C., E757  
 Detsch, T., C904  
 Detwiler, K. N., H560  
 Deval, C., E822  
 DeVito, J. L., R943  
 Devitt, P. G., G676
- DeVol, D. L., E89  
 DeVore, M. S., G955  
 Dhalla, N. S., H712  
 Dhanakoti, S. N., E437  
 Diamond, J. M., G544, G822  
 Diana, J. N., H1718  
 Dibner-Dunlap, M. E., H689  
 Dick, I. M., E272  
 Dicker, D. M., G274  
 Dickson, K. A., R745  
 Dickson, P. R., R651  
 Diesbourg, L. D., C687  
 Dietrich, R., E513  
 DiGiacomo, J. E., E506  
 DiGirolamo, M., E865, R1117  
 Dileepan, K. N., G41  
 Dimaline, R., G882  
 Dissing, S., G1044  
 Divertie, G. D., E542  
 Dixon, M., C897  
 Dixon, S. J., C687  
 Djouadi, F., F895  
 Djurhuus, J. C., G26, R637  
 Dobbins, J. W., G504, G666, G802, G807  
 Dobransky, P., C19  
 Dobre, V., F485  
 Dodds, W. J., G745  
 Doeller, J. E., H1851  
 Doerfler, M. L., H1440  
 Doerrler, W., E177  
 Doh, P. S., F539  
 Dohm, G. L., E111  
 Dollery, C. T., F26  
 Domino, K. B., H697  
 Donaldson, P. J., C869  
 Doncaster, C. P., R1220  
 Dorkin, H. L., L496  
 Dorsett, J. A., G1019  
 Dørup, I., E278  
 Doty, J. E., G1025, G1031  
 Doucet, A., F111, F246  
 Doumas, B. T., G226  
 Doupnik, C. A., L222, L255  
 Douse, M. A., R911  
 Downes, D. L., E111  
 Downes, S., F138  
 Downey, J. M., H1822  
 Drake, M. R., E443  
 Drake, R. E., R780  
 Drake-Holland, A. J., R70  
 Dreifuss, J. J., F872  
 Drenth, J. P., H2  
 Dresdner, K. P., H1826  
 Drewe, J. A., H1389  
 Drossner, M., H603  
 Drost, D. J., C687  
 Drüeke, T., F104  
 Drummond, J. C., H211  
 Duane, P. G., L439  
 Dubé, L., F348  
 duBell, W. H., H395  
 Ducroc, R., G702  
 Dudeja, P. K., G571  
 Duff, M. J., H1504  
 Dujic, Z., R288  
 Duke, G. E., G329, G481  
 Duling, B. R., H574  
 Dulloo, A. G., E658  
 Dumonteil, E., R1220  
 Dunn, A. M., L81  
 Duplessis, S., R277  
 Durr, J. A., E723  
 Dusso, A. S., F432  
 Dutka, A. J., H1655
- Dworkin, L. D., F598  
 Dynia, D. W., L488
- Eastham, C. L., H909  
 Eastman, C. L., R1189  
 Ebert, T. J., H258  
 Ebihara, A., R931  
 Eckberg, D. L., H689  
 Eckel, J., H554  
 Eddy, L., C995  
 Edelman, I. S., C968, F227  
 Edge, M. D., R266  
 Edgerton, V. R., C507  
 Edström, L., C409  
 Edwards, R. M., F217  
 Efendic, S., E626  
 Egashira, S., H9  
 Egawa, M., R799  
 Eggena, P., C462, E524, H1774  
 Ehmke, H., F466, H1050  
 Ehrlein, H.-J., G78  
 Ehrlich, Y. H., H766  
 Eisenberg, H. M., R305  
 Elahi, D., E155, E239  
 Elayan, I. M., E266  
 El Gammal, T., E723  
 Elia, M., E763  
 Eliakim, R., G93, G618  
 Elias, M. M., F559  
 Elin, R. J., H1440  
 Elizari, M. V., H290  
 Ellenberger, H. H., R879  
 Ellis, E. F., H497, H1171  
 Elsnor, D., H1643  
 Elsnor, R., R849  
 Elwood, J. P., F660  
 Elzinga, G., C349, H1601  
 Endou, H., F425  
 Engelman, R. M., H1101  
 Engels, K., F945  
 England, S. K., R1172  
 Engstrom, P. C., L328  
 Ennes, H., G889  
 Enquist, E. G., H1809  
 Enyeart, J. J., C515  
 Epstein, R., G781  
 Epstein, S., R163  
 Ermiro, R., R32  
 Eroshenko, D., H1609  
 Ertel, W., R663  
 Ertsey, R., L283  
 Esahili, H., E692  
 Escobales, N., C640  
 Escobar, E., G786  
 E Silva, M. R., H1752  
 Eskinder, H., H29  
 Esposito-Del Puente, A., E650  
 Essig, D. A., C310  
 Etscheid, B. G., C549  
 Ettinger, M. J., G212, G219  
 Evans, W. J., R461, R1214  
 Evanson, O. A., G329  
 Evered, M. D., R362  
 Everett, A. D., F660  
 Everett, M. M., L247  
 Everts, M. E., E278  
 Bysselein, V., G889
- Faber, J. E., H1126  
 Fadda, G. Z., F210  
 Fafournoux, P., E614  
 Fahren, L. A., E548  
 Falcone, J. C., H1586  
 Fambrough, D. M., C619  
 Fändriks, L., G179  
 Faraci, F. M., H1216
- Farrar, G. E., G48  
 Farrell, A. P., R453  
 Farrell, K. A., H1056  
 Fasoli, A., L320  
 Fasulo, J. M., G205  
 Faulkner, J. A., R259  
 Fawver, A. L., S11  
 Fay, F. S., C315  
 Fay, R. S., R133  
 Fedde, M. R., R878  
 Fehr, D. M., H74  
 Feigl, E. O., H1575  
 Feiner, H. D., F598  
 Feingold, K. R., E177  
 Feitler, D. A., H116  
 Fejes-Tóth, G., F672  
 Felder, C. C., F297  
 Felder, R. A., F793, F971  
 Felder, R. B., H653  
 Feldman, G. M., C35  
 Feldman, J. L., R879  
 Feldman, R. D., L426  
 Feng, H.-S., G321  
 Fennessey, P. V., E492  
 Fenton, B. M., H1912  
 Fenton, J. W., II, L270  
 Ferguson, J. L., H635  
 Ferraioli, G., G21  
 Ferrara, M., E822  
 Ferrari, P., F832  
 Ferraris, R. P., G822  
 Fery, F., E770  
 Feuerstein, G., R427  
 Fiatarone, M. A., R461, R1214  
 Fich, A., G767  
 Fieber, L. A., H997  
 Field, J. B., E529  
 Field, L. J., H1826  
 Field, M. J., F88  
 Fielding, R. A., R1214  
 Fields, A. L. A., C526  
 Filderman, A. E., L144  
 Fink, G. D., R102, R531  
 Fink, K., E131  
 Fink, M. P., G519  
 Fioramonti, J., G155  
 Fiorucci, S., G760  
 Fischer, H., L230  
 Fisher, D. A., E256, E787  
 Fisher, J. W., C427  
 Fishman, A. P., R139  
 Flamion, B., F986  
 Flanagan, A. D., H932  
 Flanagan, L. M., R447  
 Fleidervish, I., H1609  
 Fleisch, H., R679  
 Fleming, L., H1038  
 Fleming, J. D., R231  
 Floras, J. S., R1164  
 Floras, J., L488  
 Flyvbjerg, A., E278  
 Foda, H., L151  
 Foley, J. E., E457  
 Foley, K. T., R911  
 Ford, S. M., C103  
 Forder, R., R266  
 Forman, H. J., L102  
 Fornal, C. A., R963  
 Forrest, J. N., Jr., G504  
 Forssmann, W.-G., F415, F832, H1643  
 Förster, C., R925  
 Förstermann, U., F9  
 Forte, J. G., G850, G913  
 Forte, L., F485

# AUTHOR INDEX TO VOLUME 259

- Foskett, J. K., C998  
 Foster, J. A., L13  
 Foster, K. A., H432  
 Fox, M., E561  
 Franco, P., F758  
 Franconi, G. M., L372  
 Frantzides, C. T., G226  
 Franz, S. J., G380  
 Fraser, J. R. E., H532  
 Frater, R. W. M., H457  
 Fray, J. C. S., F539  
 Fredholm, B. B., C904  
 Freeman, B. A., L328  
 Freeman, G. L., H619  
 Freudenberg, T. H., F733  
 Freund, E. V., R15  
 Friedlander, G., F95, F816  
 Frisell, W. R., E111  
 Fritsch, J. M., H689  
 Frizzell, R. A., C358, C1010  
 Frokjaer, J., R637  
 Frölich, J. C., F9  
 Fryburg, D. A., E477  
 Fujii, Y., F40  
 Fujimoto, K., G709  
 Fujimura, A., R931  
 Fujita, T., E73, R1012  
 Fujiwara, M., H1  
 Fukagawa, N. K., E233  
 Fuller, M. F., E483  
 Fuortes, M., G252  
 Furukawa, N., H1044  
 Furukawa, T., H1044  
 Furukawa, Y., H839  
 Fuse, Y., E787  
 Fushiki, T., G191  
 Fuss, P., R461  
 Futaki, S., R1075
- Gabel, J. C., R780  
 Gaginella, T. S., G578  
 Gaillard, C. A., R585, R973  
 Galante, R. J., R139  
 Galbo, H., E778, R998  
 Galitzky, J., E80  
 Gall, D. G., G6  
 Galla, J. H., F778  
 Gallant, E. M., R133  
 Gallen, I. W., E639  
 Galligan, J. J., G966  
 Gallin, E. K., C727  
 Ganapathy, V., C196, G372  
 Gann, D. S., H735  
 Gannon, S. A., C746  
 Ganz, M. B., F269  
 Garabédian, M., F104  
 Garancis, J. C., G226  
 Garay, R., C570  
 Garcia, R., F130, H1374  
 Garcia-Perez, A., F847  
 Garcia-Szabo, R. R., H149  
 Gardiner, S. M., H448, R405  
 Gardner, J. D., G655, G873  
 Garland, T., Jr., R986  
 Garlick, P. J., E483, E797  
 Garrison, R. N., H728  
 Garvin, J. L., F580  
 Gary, H. E., Jr., R305  
 Garzon, B., G702  
 Gasser, K. W., C413  
 Gaugl, J. F., H1667  
 Gauquelin, G., F130  
 Gay, R. G., H796  
 Gay, W. J., R393  
 Gayeski, T. E. J., H1912
- Gaykema, R. P. A., R470, R478  
 Gazzin, B., F559  
 Gebber, G. L., R549, R561, R572  
 Gebhart, G. F., H917  
 Geisler, K. L., G928  
 Gelfand, R. A., E477  
 Gellai, M., F1  
 Gelman, S., H68  
 Geloso, J. P., F895, G702  
 Genecin, P., G21, G498  
 Genest, J., E246  
 Gerencser, G. A., R1111  
 Gerich, J. E., E397, E677  
 Gerlach, G.-F., R237  
 Gerstenblith, G., H1142  
 Gerwin, B. I., L262  
 Gewirtz, M. H., H1736  
 Geyer, J. J., F65  
 Ghishan, F. K., G327  
 Giacca, A., E626  
 Gibbs, C. L., H849  
 Gibbs, J., R110, R317  
 Gidday, J. M., H1471  
 Giebisch, G., F88, F494  
 Gierke, L. W., G631  
 Gietzen, D. W., R627, R709, R716  
 Gifford, J. D., F778  
 Gilbert, I. A., L396  
 Gilbert, W. M., R1281  
 Giles, W. R., H352, H370  
 Gillespie, M. N., L351  
 Gilliam, F. R., H626  
 Gilliam, F. R., III, H1178  
 Gillis, R. A., G899  
 Giner, M., R1090  
 Giocondi, M.-C., F95  
 Girard, J., E828  
 Girardier, L., E658, R61  
 Glantz, S. A., H1305  
 Gleich, G. J., L294  
 Glorioso, N., F304  
 Gober, J., H1190  
 Godt, R. E., C933, R204  
 Goings, G. E., C801  
 Gold, M. E., H1813  
 Goldfarb, S., F704  
 Goldman, G., L378  
 Goldman, M. E., F444  
 Goldman, W. F., H409  
 Goldspink, G., R237  
 Goldstein, R. E., H1613  
 Goll, H. M., H74  
 Gollnick, P. D., E170  
 Golub, M., H1774  
 Gomez, G., G86, G173  
 Gomez, R. A., F660, F882  
 Gonda, S. R., C611  
 Gong, D., G681  
 Gonyea, W. J., C92  
 Gonzalez, L. A., R15  
 Gonzalez-Mariscal, L., C978  
 Gonzalez-Serratos, H., C541  
 Gonzaludo, G. A., R119  
 Goodman, M. N., E513, E699, E706  
 Goodrich, A. L., G334  
 Goran, M. I., E576  
 Gorecka-Tisera, A. M., C19  
 Gorelick, F. S., G70  
 Goresky, C. A., G32  
 Gorman, A. J., F18  
 Gorski, J., C409  
 Göthert, M., E131  
 Goto, Y., R1075
- Gracely, R. H., R1156  
 Grafova, E., C241  
 Grafström, R. C., L255  
 Graham, B., R1096, R1103  
 Graham, L. A., L198  
 Graham, T. E., E170  
 Grange, R. W., C432  
 Granger, D. N., G134, G300, G462, G578, G859, H390, H925  
 Granger, H. J., G134, H925  
 Granger, J. P., R981  
 Grant, A. O., H626, H1178  
 Granzier, H. L. M., C266  
 Grassl, S., C103  
 Graves, W. L., H1492  
 Gray, G. A., H1038  
 Gray, M. A., C752  
 Greeley, G. H., Jr., G86  
 Green, D. W., G86  
 Green, K., G618  
 Green, M. W., C1010  
 Greenberg, D., R110, R317, R1093  
 Greene, A. R., R266  
 Greene, A. S., H1270  
 Greene, G. M., H560  
 Greenfield, J. C., Jr., H1006, H1477  
 Greenfield, L. J., Jr., C775, C784, C792  
 Greenwald, B. H., H728  
 Greenwell, J. R., C752  
 Greenwood, B., G593  
 Greenwood, M. R. C., R184  
 Greer, J. J., R879  
 Gregersen, H., G26  
 Grider, J. R., G184  
 Grier, B. L., E413  
 Grill, V., E792  
 Grimes, J., G1056  
 Groban, L., H258  
 Groebe, K., H84  
 Groenewold, A., R333  
 Groop, L. C., E736  
 Gross, I., L337, L488  
 Gross, M., F195  
 Gross, P. M., R1131  
 Gross, R. W., C325  
 Grossman, E., R1017  
 Groszmann, R. J., G21, G498  
 Grubman, S. A., L496  
 Gruenhaupt, D., C69  
 Grunfeld, C., E177  
 Grupp, I. L., H1759  
 Guderley, H., R245  
 Guernsey, L., C450  
 Gullans, S. R., F653  
 Gulve, E. A., E685  
 Günther, O., R294  
 Guth, P. H., G147, G1037  
 Guthrie, R. D., L116  
 Gutterman, D. D., H917  
 Guyenet, P. G., R1063  
 Guyton, A. C., R865  
 Gwathmey, J. K., H784  
 Györy, A. Z., F480
- Haas, M., C557  
 Haass, M., R925  
 Haberstroh, U., F419  
 Hackett, J. T., C775, C784, C792  
 Hadi, M., G219  
 Hadley, R. W., H1448  
 Hagen, P.-O., H340
- Hagen, T. M., G524, G530  
 Hagiiike, M., R1289  
 Hagman, I., G348  
 Hajjar, R. J., H784  
 Halayko, A. J., L53  
 Hall, J. E., R585, R973  
 Hall, S. L., H1921  
 Hallemans, R., H93  
 Hallenbeck, J. M., H1655  
 Halligan, R. D., C134  
 Halloran, B. P., E715  
 Halonen, M., L81  
 Halperin, H. R., H1869  
 Halpern, W., H902  
 Halter, J. B., E422  
 Hamada, Y., H218  
 Hamm, L. L., F402  
 Hammer, V. A., R627  
 Hammerman, M. R., F251, F474, F747  
 Han, J., G321  
 Hanai, H., F444  
 Haner, R. G., F733  
 Hansen, B. C., R612  
 Hansen, V. A., F251, F747  
 Hansford, R. G., H1222  
 Hanson, R. B., G767  
 Haramati, A., R84  
 Harder, D. R., H29  
 Harding, R., R703, R745  
 Harding, S. E., H1009  
 Hardwick, L. L., G720  
 Harris, A., C752  
 Harris, C. C., L262  
 Harris, D. A., H1264  
 Harris, H. W., Jr., F366  
 Harris, P. D., H728  
 Harris, R. B. S., R45  
 Harrison, D. G., H1161  
 Hart, M. N., H162  
 Hartl, W. H., C526, E239, E470  
 Hartley, C. J., H448  
 Harwell, C. M., R1126  
 Hassan, A. S., H1185  
 Hasunuma, K., H48  
 Hatfaludy, S., C232  
 Hauge, Y., H1527  
 Haunsø, S., H1709  
 Hauser, M. R., C84  
 Haverty, T. P., F704  
 Hawkins, R. A., E104  
 Hay, W. W., Jr., E492, E506  
 Hayakawa, T., G727  
 Hayashi, H., G386, G709  
 Haycraft, D. L., C738  
 Haymond, M. W., E327, E890  
 Haynes, J., Jr., H144  
 Hays, S. R., F628  
 He, L., L451  
 Headrick, J. P., H62, H1637  
 Hearse, D. J., H879  
 Hébert, R. L., F318  
 Hebert, S. C., C471  
 Hechtman, H. B., L378  
 Heckmann, U., F910  
 Heeney-Campbell, M., L206  
 Heesch, C. M., H720, H1718  
 Heideman, P. D., R25  
 Heilig, C. W., F653  
 Heistad, D. D., H560  
 Heldmaier, G., E11  
 Helfaer, M. A., H1551  
 Helgesen, K. G., H1595  
 Hellebrekers, L. J., H1270  
 Heller, L. J., H772



# AUTHOR INDEX TO VOLUME 259

- Hellerström, C., C828  
 Hellige, G., H167  
 Hempel, S. L., C738  
 Hendley, E. D., H248  
 Hendrick, D. A., H218  
 Henke, D. C., L213  
 Henriksen, E. J., E593  
 Henry, P. D., H1933  
 Hensen, J., E723  
 Herchuelz, A., E844  
 Herland, J. S., H1118  
 Herndon, D. N., E576  
 Herndon, J., F402  
 Hertelendy, F., E872  
 Herzberg, G. R., E437  
 Herzon, G., G245  
 Herzyk, D. J., L276  
 Hess, M. L., H1390  
 Hetenyi, G., Jr., E292  
 Heublein, D. M., F312  
 Heys, S. D., E797  
 Hieble, J. P., E131  
 Higuera, T. R., H1152  
 Hildebrandt, D. A., R585, R973  
 Hill, D. L., R786  
 Hill, E., R849  
 Hill, J. M., H745  
 Hill, J. O., R1096, R1103  
 Hill, M. A., H1586  
 Hillemeier, C., G239  
 Himms-Hagen, J., R324  
 Himpens, B., C150  
 Hintze, T. H., H1736  
 Hirata, Y., F936  
 Hiriart, M., C949  
 Hirshman, M. F., E210  
 Hisatome, I., H1730  
 Hjelte, L., G116  
 Hjermadal, P., F573  
 Ho, P., F80  
 Hoak, J. C., C738  
 Hochstein, P., C995  
 Hock, C. E., H1518  
 Hodges, R. R., G274  
 Hoeft, A., H167  
 Hoeldtke, R. D., E225  
 Hoeltzli, S. D., C47  
 Hoffman, A., R84, R1017  
 Hoffman, W. D., H1440  
 Hoffman, W. H., E723  
 Hogaboam, C. M., G140  
 Hogan, W. J., G745  
 Hohmann, M., R753  
 Hoilien, C. A., F279  
 Hoit, B. D., H480  
 Holehouse, E., R461  
 Hollander, D., C397  
 Holloszy, J. O., E155, E593, E685  
 Holm, B. A., L328  
 Holm, L., G179  
 Holmäng, A., E555  
 Holohan, P. D., C103, C897  
 Honrath, U., F222, F415  
 Hood, V. L., E327  
 Hooper, S. B., R703, R745  
 Hopfer, U., C413  
 Hopkins, D. A., H1207, H1365  
 Horan, M. A., R266  
 Horgan, M. J., L315  
 Horiba, T., R1289  
 Hornby, P. J., G899  
 Horne, D. W., G865  
 Horta, J., C949  
 Horton, E. S., E210  
 Horton, J. W., H309, H1781  
 Hoshi, T., G372  
 Hosomi, H., R1289  
 Hosseini, J. M., H1440  
 Hourani, H., E342  
 Houser, S. R., H395  
 Housmans, P. R., H827  
 Houston, M. E., C432  
 Howard, M., G865  
 Howard, M. J., C224  
 Howell, N. L., F793  
 Hoyland, J., C675  
 Hoyt, D. G., L47  
 Hruby, V. J., G736  
 Hruska, K. A., F485  
 Hryshko, L. V., H951  
 Huang, S. C., G655  
 Huang, Y. T., L396  
 Hughes, A. D., H14  
 Hugonot, F., G198  
 Hultman, E., E204  
 Hume, J. R., H1448  
 Humes, H. D., F438  
 Hummel, M. M., L276  
 Humphrey, C. B., R1156  
 Humphrey, J. D., H101  
 Hundal, H. S., E148  
 Hunt, M. M., R119  
 Hunter, M., C1005  
 Hunter, W. C., H1566  
 Hurst, A. M., C1005  
 Hus-Citharel, A., F916  
 Huxley, V. H., H1351, H1357  
 Hwang, D. L., R545  
 Hybbinette, S., L255  
 Iannuzzi, M. C., L496  
 Ibarra, C., G786  
 Ibbotson, G., G300  
 Idzikowski, C., G983  
 Ignarro, L. J., H1813  
 Ikebe, M., C315  
 Ikeda, S., L372  
 Illebekk, A., H1595  
 Illek, B., L230  
 Ilundain, A., G775  
 Imai, M., F408  
 Imura, H., E27  
 Inagami, T., F882  
 Inauen, W., G134, H925  
 Inchiostro, S., E96  
 Inman, K. C., R521  
 Inoue, G., E27  
 Inoue, K.-I., H940  
 Inscho, E. W., F157  
 Insel, P. A., C41, C224  
 Intaglietta, M., H190  
 Ipp, E., R1126  
 Irion, G. L., H197  
 Irvine, R. F., C675  
 Isenman, D., H525  
 Ishide, N., H940, L345  
 Ishihara, H., L345  
 Ismail-Beigi, F., C968  
 Israel, J.-M., C854  
 Ito, S., G564  
 Itoh, H., R842  
 Itoh, Y., E498  
 Iwai, A., H1649  
 Iwamoto, G. A., R606  
 Jackson, D. C., R15, R521  
 Jackson, E. M., R157  
 Jackson, R. M., H518  
 Jacob, P., G245  
 Jacobs, B. L., R963  
 Jacobson, H. R., F318  
 Jacobus, W. E., H1566  
 Jadali, F., E225  
 Jaffe, B. M., G252  
 Jaffer, S., G934  
 Jahoor, F., E239  
 Jain, M., G899  
 James, D., E561  
 Jamieson, G. A., Jr., C549  
 Jamieson, G. G., G676  
 Jamison, R. L., F688  
 Janiak, P. C., R1025  
 Janoshazi, A., F366  
 Janssen, L. J., L304  
 Janssens, J., G1062  
 Jansson, L., E52  
 Jansson, T., G179  
 Jany, B., L38  
 Janzen, D. L., H909  
 Jard, S., F872  
 Jasper, J. R., C41  
 Jauch, K.-W., C526  
 Jeanprêtre, N., E305  
 Jefferson, D. M., L496  
 Jeffery, C. D., R70  
 Jeffrey, F. M. H., H987  
 Jennings, M. L., C960  
 Jennische, E., E555  
 Jensen, M. D., E542  
 Jensen, R. T., G436, G468, G655, G873  
 Jéquier, E., E305  
 Jeroudi, M. O., H889, H1901  
 Jia, X., G922  
 Jiang, B., C507  
 Jiao, J.-H., H735  
 Jilka, R. L., G41  
 Jilling, T., C1010  
 Johannsen, L., R439  
 Johansson, G., E162  
 Johns, D. W., F882  
 Johnson, A. K., R1035, R1267  
 Johnson, L. G., C557  
 Johnson, L. R., G584  
 Johnson, M. D., E432  
 Johnson, M. L., E351  
 Johnson, P. R., R184  
 Johnson, R. F., R1035  
 Johnson, R. M., C746  
 Johnson, T. R., G973  
 Johnston, I. A., R231  
 Jones, C. T., E57  
 Jones, D. B., C897  
 Jones, D. P., G524, G530  
 Jones, M. B., L247  
 Jones, M. E., L238  
 Jones, M. R., G720  
 Jones, R. M., H1101  
 Jones, S. M., H1009  
 Jönson, C., G179  
 Jørgensen, J., H1709  
 Jørgensen, K. D., E278  
 Jørgensen, T. M., R637  
 Jose, P. A., F297  
 Joseph, L., R461  
 Jost, U., F910  
 Jouvantin, P., R1220  
 Jovov, B., C869  
 Joyce, E. H., H23  
 Jubelin, B. C., C389  
 Juel, C., E170  
 Julian, F. J., H1118  
 Julien, C., H1337  
 Julou-Schaeffer, G., H1038  
 Jung, R. T., E185  
 Jurkiewicz, N. K., H1881  
 Kadam, J. R. C., R7  
 Kadokaro, M., R305  
 Kadish, A. H., H1463  
 Kadowaki, S., E73  
 Kadowitz, P. J., H1152  
 Kahf, S., F419  
 Kahn, A. M., C134  
 Kahn, B. B., E778  
 Kahn, S. E., E378  
 Kahrilas, P. J., G245  
 Kaiser, L., H648  
 Kaji, D. M., C332  
 Kajiyama, H., R931  
 Kakehi, T., E27  
 Kaley, G., H1313  
 Kalil-Filho, R., H1142  
 Källskog, Ö., F60  
 Kamm, K. E., C484  
 Kampine, J. P., R288  
 Kanagy, N. L., R102  
 Kanarek, R. B., R823  
 Kandza, F., H1337  
 Kannan, M. S., C389, L459  
 Kantengwa, S., C77  
 Karaki, H., H1  
 Kargacin, G. J., C315  
 Karmazyn, M., H424, H1239  
 Kashgarian, M., F88  
 Kashiara, H., R453  
 Kastin, A. J., E1  
 Kato, M., C527  
 Katz, A., C26, C834  
 Katz, A. I., F40  
 Katz, J., C389  
 Kaufman, M. P., H745  
 Kaufman, S. S., G639  
 Kaufman, T. M., H309  
 Kaufmann, M.-T., R993  
 Kaul, R., E11  
 Kauser, K., H29  
 Kawaguchi, J., C715  
 Kawaguchi, O., R1075  
 Kawai, R., H1278  
 Kawai, Y., H42  
 Kawasaki, T., G1010  
 Kayali, A. G., E699  
 Kedem, J., H872  
 Keen, J. E., R453  
 Keenan, C. M., G462  
 Keesey, R. E., E534  
 Keil, L. C., R618  
 Keiser, H. R., R1017  
 Keku, E. O., G99  
 Kelemen, R. J., G671  
 Keller, R. S., H504  
 Keller, U., E327, R993  
 Kellerman, P. S., F279  
 Keller-Wood, M., R350  
 Kelley, L. K., C47  
 Kelly, A. M., L365  
 Kelly, E., L130  
 Kelly, K. A., G928  
 Kelly, R. A., H973  
 Kempsford, R. D., H879  
 Kennedy, B. G., C29  
 Kennedy, J. M., C310  
 Kenney, M. J., R549, R572  
 Kern, M., E111  
 Kern, M. K., G745  
 Keski-Oja, J., L262  
 Keve, T. M., R753  
 Khadouri, C., F246

- Khalil, R. A., H2  
 Khan, A., E626  
 Khorchid, S., C397  
 Kiang, J. G., C727  
 Kidd, J., F383  
 Kieswetter, C., R981  
 Kikeri, D., C471, F366  
 Kim, H.-K., E362  
 Kim, Y., F598  
 Kimmel, P. L., E319  
 Kimura, K., F936, G252  
 Kimura, S., H1044  
 King, D. S., E155  
 King, L., C849  
 King, R. J., L247  
 Kinney, P. A., L276  
 Kinoshita, S., F971  
 Kirchheim, H. R., F466, H1050  
 Kirchhof, C. J. H. J., H1015, H1254  
 Kirk, K. L., C842, C1010  
 Kirsch, G. E., H820  
 Kirsch, J. R., H1551  
 Kirshner, N., C161  
 Kitagawa, M., G157  
 Kitakaze, M., H1767  
 Kitazawa, Y., E498  
 Kjeldsen, I. M., G274  
 Kjær, M., R998  
 Klahr, S., F859  
 Klausner, J. M., L378  
 Klein, S., E239  
 Kleinert, H. D., R7  
 Klinger, K. W., L496  
 Klinkefus, J. M., R1050  
 Klitzke, A., G571  
 Klopstein, H. S., H512  
 Kluger, M. J., R126, R724  
 Knardahl, S., H248  
 Knepper, M. A., F53, F393, F519, F961  
 Knickelbein, R. G., G504, G666, G802, G807  
 Knowler, W. C., E650  
 Knudsen, L., R637  
 Knuepfer, M. M., H1674  
 Ko, K. R., H1703  
 Kobzik, L., L378  
 Koch, G., G443  
 Kocsis, B., R549, R561, R572  
 Kodner, A., G889  
 Koehler, R. C., H34  
 Koelbel, C. B. M., G889  
 Koeppen, B., C450  
 Koerker, D. J., E517  
 Köhler, W. W., H1050  
 Kohlhardt, M., C599  
 Kohmoto, O., H962  
 Kohrt, W. M., E155  
 Kolar, F., H712  
 Koldovský, O., G1056  
 Koller, A., H1313  
 Komaru, T., H940  
 Kon, K., H1071  
 Kone, B. C., F653  
 Kong, S.-K., L53  
 Kono, S., E27  
 Konrad, E. M., E246  
 Koranyi, L., E593  
 Korb, H., H167  
 Korchid, S., G865  
 Koretsune, Y., H843  
 Korf, J., R773  
 Kornecki, E., H766  
 Kosaki, A., E27  
 Kostenbauder, H. B., L351  
 Kotchen, T. A., R76  
 Kotlikoff, M. I., L365, L384, L468  
 Kotsanas, G., H849  
 Kou, W. H., H1463  
 Kraglund, K., G26  
 Krahmer, R. L., H635  
 Kralios, A. C., H1559  
 Kralios, F. A., H1559  
 Krämer, B. K., H973  
 Krams, R., H1869, H1934  
 Kranzhöfer, R., R925  
 Krause, S. M., H813  
 Kresh, J. Y., H1934  
 Kreulen, D. L., G490  
 Krieger, J. E., H1629  
 Kritchevsky, D., G386  
 Krizan, D., R842  
 Kromer, E. P., H1643  
 Kron, M. J., C490  
 Krueger, J. A., H962  
 Krueger, J. M., R439  
 Kruithoff, K. L., G519  
 Kubes, P., G300, G859  
 Kudo, L. H., F258  
 Kuga, T., H9  
 Kuhn, C. M., G781  
 Kukreja, R. C., H1330  
 Kukreja, S. C., E792  
 Kumar, D., G983  
 Kumar, R., F195  
 Kumaran, K., E335  
 Kumaroo, K. K., H1655  
 Kumazawa, T., R420  
 Kunkel, S. L., R724  
 Kuno, M., C715  
 Kunze, D. L., H1389  
 Kuo, H.-P., L108  
 Kuo, L., H1063, H1694  
 Kurihara, K., R420  
 Kurtz, A., C421  
 Kurtz, I., C365  
 Kürty, D., E327  
 Kutner, M. H., R1117  
 Kuwahara, M., F902  
 Kuzuya, H., E27  
 Kvietys, P. R., G134, G578, H925  
 Kwok, Y. N., G922  
 La, B.-Q., F46  
 Laakso, M.-L., E162  
 Laborde, A. L., H1270  
 LaCagnin, L. B., L57  
 Lachance, D., H1374  
 Lacour, B., F104  
 Lacy, D. B., E195  
 Lafontan, M., E80  
 LaFramboise, W. A., L116  
 Lahtela, J. T., E389  
 Lai, E. K., H1901  
 Lakatta, E. G., H1222  
 Lakshmanan, J., E256  
 Lam, R. W., E256, E787  
 Lammers, W. J. E. P., H1254  
 LaMont, J. T., G165, G681  
 Lamping, K. G., H1161  
 Landau, B. R., E335, E757  
 Landaw, E. M., R163  
 Landers, B. R., G676  
 Landgraf, R., R1056  
 Landon, M., H174  
 Lang, I. M., G155  
 Langer, G. A., H592, H1222  
 Langer, J., G306  
 Langille, B. L., H1247  
 Langleben, D., H1928  
 Langley, S. C., R539  
 Langman, C. B., E319  
 Langston, M. A., H1152  
 Lanson, N. A., Jr., H1826  
 Larsson, M., E692  
 Larsson, O., C904  
 Lasater, E. M., C205  
 Lash, J. M., G282  
 Lash, L. H., F338  
 Lassiter, A. E., E351  
 Lattemann, D. F., E378  
 Lattier, D. L., L185  
 Laughlin, M. H., H643  
 Lauredo, I. T., L136  
 Laurent, T. C., H532, H1097  
 Laurent, U. B. G., H532  
 Laussou, S., E370  
 Lauth, W. W., G605  
 Lawler, R. G., R521  
 Layman, R. D., G745  
 Lazo, J. S., L47  
 Leal-Cardoso, J. H., C933  
 Lebrun, P., E117, E123, E844  
 Lecce, J. G., G99  
 Lechner, A. J., L359  
 Lechner, J. F., L262  
 Lederis, K., R1056  
 Lee, C. M., G882  
 Lee, D. B. N., G720  
 Lee, D. S. C., L95  
 Lee, J., F286  
 Lee, K. Y., G960  
 Lee, S. Y., G753  
 Lee, T. M., R760  
 Leeman, M., H93  
 Lefer, A. M., H1660  
 Leff, A. R., L130, L294  
 Leff, J. A., H1809  
 Leffler, C., H662  
 Leffler, C. W., H1230, H1486  
 Le Grimellec, C., F95, F816  
 Leibach, F. H., C196, G372  
 Leikauf, G. D., L222, L255  
 Lejeune, P., H93  
 Lekan, H., R305  
 Lemas, V., C619  
 LeMay, D. R., R126  
 LeMay, L. G., R126  
 Lemieux, C., R277  
 Lemieux, G., R277  
 Lencer, W. I., C920  
 Lennon, J. M., L270  
 Lenzen, R., G736  
 Lerman, B. B., H1544  
 Lester, G. E., E665  
 Leung, F. W., G1037  
 Leusen, I., C169  
 Levi, R. J., H290  
 Levillain, O., F916  
 Levin, R. I., F598  
 Levine, E. H., L372  
 Levine, M. A., F444  
 Levinson, M., G15  
 Levi-Setti, R., E586  
 Lev-Ran, A., R545  
 Levy, B. I., H403  
 Levy, M. N., H839  
 Lew, M. J., H574  
 Lew, W. Y. W., H480, H1409  
 Lewartowski, B., H1222  
 LeWinter, M., H480  
 Lewis, D. S., R157  
 Lewis, M. C., G233  
 Lewis, S. A., C869  
 Lewis, S. J., R1025  
 Li, M., C295, L496  
 Li, P., G960  
 Li, X.-Y., H1901  
 Liang, C. T., F444  
 Liard, J.-F., H1270, H1629  
 Liauw, S., H525  
 Licht, P., R760  
 Lichtlen, P. R., H167  
 Lida, J., R237  
 Lidofsky, S. D., G56  
 Liedtke, A. J., H317  
 Liedtke, C. M., L66  
 Lightman, S., R601  
 Lightman, S. L., R70  
 Lillioja, S., E650  
 Limbird, L. E., F977  
 Lin, C.-C., H340  
 Lin, D., R1096, R1103  
 Lin, H. C., G1025, G1031  
 Lin, J., E699  
 Lin, Y., L359  
 Linares, O. A., E422  
 Linas, S. L., F279  
 Lindbom, L., H190  
 Linden, J., C775, C784, C792  
 Lindheimer, M. D., F293  
 Lindsay, A. D., R879  
 Lipchik, R. J., L73  
 Lipsius, S. L., H1842  
 Lipton, J. M., R768  
 Listrat, A., E822  
 Litto, W. J., R963  
 Liu, F.-Y., F72, F451  
 Liu, G., R879  
 Liu, G. S., H1822  
 Liu, X., H1101  
 Livingston, J. N., E561  
 Livingston, J. Z., H1869  
 Ljungqvist, O., E692  
 Lloyd, K. C. K., G822  
 Lo, M., H1337  
 Lo, S. K., H149  
 Lobaugh, B., E665  
 Lobley, G. E., E483  
 Lockhart, L. K., G605  
 Lodish, H. F., C279, C286  
 Loftus, C. M., H560  
 Loizeau, M., E828  
 Lombard, J. H., H29, H860  
 London, R. E., C940  
 Lonergan, P. A., G219  
 Long, N. C., R724  
 Longo, E., C640  
 Lopaschuk, G. D., H1079  
 Lopes, M. J., F357  
 Lopez-Hilker, S., F432  
 Lord, A. P. D., G443  
 Lorenz, J. N., F186  
 Lorenz, R. R., H982  
 Loscalzo, J., H804  
 Louard, R. J., E477  
 Lounsbury, K. M., E216  
 Loureiro, M. L., H1752  
 Loveday, J. A., R119  
 Low, P. A., R371  
 Loy, G. L., E492  
 Lu, M., C462, E524  
 Lucas, P., F104  
 Ludwig, D. A., R792  
 Luke, R. G., F778  
 Lumbers, E. R., R1004  
 Lunazzi, G. C., F559

## AUTHOR INDEX TO VOLUME 259

- Lundgren, D. W., C647  
 Lupien, J. R., E210  
 Lüscher, T. F., H1433  
 Lutz, P. L., R376  
 Luu, P., E513  
 Lynch, K. R., F660  
 Lynn, R. B., G321  
 Lytle, C., C819
- Ma, C.-L., E524  
 Ma, J. Y. C., L57  
 Maass-Moreno, R., H932  
 Macdonald, I. A., L639  
 MacDonald, J. A., R191  
 MacDonald, M. J., E548  
 Machado, B. H., R955  
 Mack, C. E., H197  
 MacVittie, T. J., H1440  
 Madara, J. L., G165  
 Madeddu, P., F304  
 Maeda, I., E27  
 Maeda, N., H1071  
 Maffia, M., R1181  
 Magder, S., H1789, H1796  
 Magness, R. R., H464, H473  
 Mah, M., R1164  
 Mahan, L. C., C41  
 Mahony, L., H309  
 Maid, G., H290  
 Mailer, K., H424  
 Maixner, W., R1156  
 Majumdar, A. P. N., G626  
 Makhoul, G. M., G184  
 Makielski, J. C., H1609  
 Malagelada, J.-R., G314  
 Malaisse, W. J., E117, E123  
 Malhotra, A., H866  
 Malik, A. B., H149, L270, L315  
 Malik, K. T. A., R237  
 Malinowska, D. H., G536  
 Malkinson, T. J., R1056  
 Malloy, C. R., H987  
 Malnic, G., F357  
 Mandel, L. J., F164, F176  
 Mandrell, T. D., H681  
 Maniscalco, W. M., L206  
 Manning, R. D., Jr., H1317, R1205  
 Männistö, P. T., E162  
 Manohar, M., H1185  
 Mans, A. M., E104  
 Mantey, S., G468  
 Manuli, M. A., C968, F227  
 Manunta, P., F304  
 Marban, E., H843, H1767  
 Marcus, M. L., H909, H917  
 Margulies, K. B., F312, R97  
 Maric, M., G6  
 Marin, M. G., L198  
 Marini, F. C., L496  
 Marino, C. R., G70  
 Marino, L. R., G108  
 Maroun, L., R998  
 Marsh, D. J., F60, F715  
 Marsh, J. D., H333, H973, H1533  
 Marsh, R. L., R223  
 Marshall, S. M., E278  
 Marsy, S., F246  
 Martin, C. J., G380  
 Martin, H. M., L247  
 Martin, K. J., F432  
 Martin, L. W., R768  
 Martin, P., H839  
 Martin, P. J., H536
- Martin, R. J., R45  
 Martin, T., E804  
 Martin, T. J., E792  
 Martin, W. H., III, H1402  
 Martinez, A. M., R1126  
 Martinez, J., G655  
 Marumo, F., F535, F902  
 Marzio, L., G306  
 Maskrey, M., R492  
 Masman, D., R333  
 Mason, W. T., C675  
 Massaldi, H. A., R172  
 Massie, B., H1190  
 Massry, S. G., F210  
 Mast, F., H1601  
 Masuda, T., L345  
 Matalon, S., L328  
 Mather, J. P., L415  
 Matherne, G. P., H1637  
 Mathias, D. W., H512  
 Mathieu-Costello, O., H204  
 Matoba, Y., H973  
 Maton, P. N., G436  
 Matsukawa, K., H1380  
 Matsuki, T., H1032  
 Matsumoto, M., H1134  
 Matsumura, J., H211  
 Matsuo, H., F936  
 Matsushita, K., R1289  
 Mattes, P., C450  
 Matthews, C., H1743  
 Matthews, D. E., E633  
 Matthijs, G., C150  
 Mattiazzi, A., C266  
 Mattoli, S., L320  
 May, M. E., E342  
 Mayer, E. A., G889  
 Mayeur, S., G1062  
 Mayhan, W. G., H1455  
 Mazzoni, M. C., H1860  
 McAllen, R. M., R593  
 McAllister, R. M., C889  
 McArthur, K. E., G760  
 McAuliffe, T. L., E66  
 McBride, D. E., F65  
 McBride, R. K., L198  
 McBurnie, M., R729, R736, R741  
 McCann, J. D., C295, L410  
 McCarron, D. A., F104  
 McCarron, J. G., H902  
 McCarty, N. A., F950  
 McCarty, R., E19  
 McCay, P. B., H1901  
 McCormick, S. D., R857  
 McCutchan, H. J., H1809  
 McDermott, P. J., H432  
 McDonald, G., H1781  
 McDonald, J. A., F783  
 McDonald, T. F., H264  
 McDonnell, T. J., H751  
 McEwan, G. T. A., G474  
 McEwen, B. S., E405  
 McFadden, E. R., Jr., L396  
 McGalliard-Cone, C., E715  
 McIntire, M. R., L213  
 McIntosh, C. H. S., G922  
 McIntosh, R. H., E457  
 McKee, E. E., E413  
 McKenzie, D. I., E548  
 McKenzie, J. E., H109, H1295  
 McKinley, G., H804  
 McKinley, M. J., F839, R593  
 McKinney, J. S., H1171  
 McKinney, L. C., C727  
 McKittrick, D. J., R357
- McKnight, G. W., G140  
 McLaughlin, B., G245  
 McLaughlin, M., C933  
 McLaughlin, M. K., R753  
 McManus, L. M., L81  
 McManus, T. J., C819  
 McMillen, I. C., R745  
 McMurtry, I. F., H48, H1921  
 McNabney, L. A., C310  
 McNurlan, M. A., E797  
 McVeigh, J. J., H1079  
 McWeeny, O. J., R1050  
 Meddings, J. B., G940  
 Meglasson, M. D., E216  
 Meguid, M. M., R1090  
 Mehrgut, F. M., F801  
 Meininger, C. J., G134, H925  
 Meininger, G. A., H1126, H1586  
 Melin, T., G116  
 Melis, M. G., F304  
 Melot, C., H93  
 Melton, M. E., E792  
 Melville, L. D., R317  
 Merhoff, E., R849  
 Merlet-Bénichou, C., F895, G702  
 Merli, C., F402  
 Merritt, A. M., R1259  
 Meschia, G., E492  
 Meulemans, A. L., H1148  
 Meydani, M., R1214  
 Meydani, S. N., R1214  
 Meyer, B. A., E851  
 Meyer, D. J., Jr., H1351, H1357  
 Meyer, G. E., R1148  
 Meyer, J. H., G1025, G1031  
 Meyer, T. W., F239  
 Meyerhoff, D. J., H1190  
 Meyers, W. C., G781  
 Mezzetti, M., L320  
 Miente, S., L320  
 Miccio, M., F559  
 Michel, M. C., E131, H174  
 Mickle, D. A. G., H116  
 Middleton, J. P., F727  
 Midulla, F., L396  
 Mielke, G., L439  
 Miescke, K.-J., R1189  
 Mifflin, S. W., H653  
 Mikines, K. J., R998  
 Mikkelsen, J. D., H1709  
 Miledi, R., C397  
 Miles, J. M., E542, E890  
 Miles, P. R., L57  
 Miles, R., H1389  
 Milhaud, G., E370  
 Milks, L., C577  
 Milland, J., G340  
 Miller, A. H., E405  
 Miller, D. S., R147  
 Miller, L. J., G314  
 Miller, P. L., F239  
 Miller, S. B., F251, F474, F747  
 Miller, T. B., F539  
 Miller, W. L., F312  
 Mills, D. E., R1164  
 Mills, E., G781  
 Milne, E., E797  
 Milsom, W. K., R878, R898  
 Mink, R. B., H1655  
 Minkes, R. K., H1152  
 Mirro, R., H1230  
 Mirzayan, R., C822  
 Mitchell, G. S., R911  
 Mitchell, J. H., H1380  
 Mitchell, R. W., L130
- Mitsuo, W., H9  
 Mittleman, G., R485  
 Miura, M., L345  
 Miyake, K., R1289  
 Miyamoto, Y., G372  
 Miyauchi, A., F485  
 Miyazaki, Y., C325  
 Miyoshi, H., E239  
 Mizelle, H. L., R585, R973  
 Modell, H. I., S24  
 Moe, A. J., C47  
 Moffat, M. P., H1239  
 Mogul, D. J., H488  
 Mohrman, D. E., H772  
 Molitoris, B. A., F279  
 Molnár, M., E872  
 Mommsen, T. P., E644  
 Monaf, W. W., H1649  
 Mondon, C. E., E706  
 Montani, J.-P., R393, R973  
 Montes, R., R1267  
 Montgomery, J. C., R191  
 Montrose, M. H., C110, C121  
 Mook, D. G., R786  
 Moon, D. G., C611  
 Moon, T. W., E644  
 Moore, C. D., G998  
 Moore, R., G165  
 Moore, R. L., C432  
 Moore, S. A., H162  
 Morady, F., H1463  
 Moran, S. M., E548  
 Moran, T. H., G873  
 Mordhorst, M., F698  
 Morel, F., F916  
 Morell, G., F867  
 Morey-Holton, E., E715  
 Morgan, D., H1544  
 Morgan, E. H., G611  
 Mori, N., R921  
 Morilak, D. A., R963  
 Morishita, T., E73  
 Morita, H., R1289  
 Moriyama, T., F847  
 Morris, B. L., R1164  
 Morris, D. C., G41  
 Morris, J. A., E342  
 Morrison, A. R., F698  
 Morrisette, J., G973  
 Morse, E. L., E463  
 Mortillaro, N. A., S8  
 Mortola, J. P., R836  
 Moseley, R. H., G973  
 Moser, A. H., E177  
 Moss, A., E561  
 Moss, N. G., R1243  
 Mossberg, K. A., H1022  
 Motomura, S., H174  
 Motulsky, H. J., C41, E131  
 Mouroux, I., R90  
 Moxley, R. T., III, E561  
 Mueller, L. R., G329  
 Mugharbil, A., G666  
 Muglia, B. H., G108  
 Mühlbauer, R. C., R679  
 Mukai, M., C715  
 Mulholland, M. W., G934  
 Müller, A., R172  
 Müller, M. J., E305  
 Mulvany, M. J., H14  
 Munoz, N. M., L294  
 Murashita, T., H879  
 Murer, H., C110, C121  
 Murphy, D. A., H1365  
 Murphy, E., C940

# AUTHOR INDEX TO VOLUME 259

- Murphy, R. A., C251  
 Murphy, S. A., G274  
 Murphy, T. M., L130  
 Murray, F. T., E881  
 Murray, J. J., H340  
 Murray, P. A., H74  
 Musch, M. W., G947  
 Myerburg, R. J., H1044  
 Myers, A. C., L403  
 Myers, J. B., C531
- Nadel, J. A., L372  
 Nadler, J. L., H1774  
 Naeije, R., H93  
 Nagain, C., G198  
 Nakajima, T., H1071  
 Nakamura, A., E73  
 Nakamura, F., C715  
 Nakamura, H., G372  
 Nakamura, M., F408, H9, H1343  
 Nakashima, J., C427  
 Nanba, S., F936  
 Náráy-Fejes-Tóth, A., F672  
 Natanson, C., H1440  
 Nattel, S., H1743  
 Nauntofte, B., G1044  
 Navar, L. G., F157, F739  
 Navas, J. P., H333  
 Nealon, W. H., G173  
 Neese, R., E177  
 Neil, B., E804  
 Neilson, E. G., F768  
 Nellis, S. H., H317  
 Nelson, D. K., R371  
 Nelson, G. H., H243, H1396  
 Nelson, J., E216  
 Nelson, M. T., C3  
 Neri, M., G767  
 Nesterenko, V. V., H626  
 Newby, F. D., E865, R1117  
 Newman, A. H., H1278  
 Neylon, C. B., C675  
 Ng, O. C., G727  
 Ngai, A. C., H1703  
 Nguyen, V. T. B., H1022  
 Nicholas, T. E., L238  
 Nichols, K. V., L488  
 Nicholson, J., H1108  
 Nielsen, C. G., G474  
 Niewoehner, C. B., E804  
 Niewoehner, D. E., L439  
 Nikinmaa, M., C723  
 Nikolic, S. D., H457  
 Nilsson, Å., G116  
 Nilsson, G. E., R376  
 Ninomiya, I., R499  
 Nishimura, H., E27, H1396  
 Nishimura, J., H2  
 Nishiura, N., R499  
 Nivez, M.-P., F619  
 Noble, M. I. M., R70  
 Nolan, W. F., S1  
 Nolop, K. B., L123  
 Nonoguchi, H., F535  
 Nonomura, Y., H1  
 Norman, W. P., G899  
 North, R. A., G966  
 Nosadini, R., E96, E890  
 Nosek, T. M., C933  
 Novakofski, J., E89  
 Nozawa, K., H1774  
 Nuesslein, B., R270  
 Nuglozeh, E., F130  
 Nuno, D. W., H1161  
 Nurhan, N., E397, E677
- Nusrat, A. R., L432  
 Nussberger, J., F573  
 Nutting, D. F., G709  
 Nye, J. P., F65  
 Nyhan, D. P., H74  
 Nylander, W., G327  
 Nyomba, B. L., E650  
 Nystuen, L., C849
- Oba, T., C709  
 Obal, F., Jr., R439  
 O'Brien, R. F., H48  
 Ochoa, M., H1736  
 Ochs, T., F594  
 Odom, M. W., L283  
 Oetting Deems, R., R823  
 O'Gara, P., H1009  
 O'Grady, S. M., L459  
 Ohgoshi, Y., R1075  
 Ohhashi, T., H42, H1032  
 Ohkuwa, T., E778, R998  
 Ohlstein, E. H., F217, H1835  
 Ohno, S., L294  
 Ohyama, H., R1289  
 Okamoto, M., E27, E27  
 Okamura, T., H1511  
 Okubo, S., R836  
 Oliver, M. G., G991  
 Olivetti, G., H1086  
 Olson, D. M., L95  
 Olson, J. W., L351  
 Omar, H. A., H1056  
 O'Neil, R. G., F950  
 O'Neill, M., H1533  
 Ong, F., R736  
 Ontell, M., L116  
 Oosting, R. S., L87  
 Opp, M., R439  
 Orencole, S. F., R1214  
 Orner, F. B., H592  
 O'Rourke, B., H230  
 O'Rourke, S. T., H156  
 Orrego, H., G1010  
 Ortiz de Montellano, P., L451  
 Ortola, F. V., F138  
 Osborn, J. L., H29  
 Osborn, J. W., R1172  
 Osborne, P. G., R729, R741  
 Osborne, T. N., H211  
 Osol, G., R753  
 Ostadal, B., H712  
 Oswald, B., G15  
 O'Toole, M. F., H1504  
 Ott, C. E., R76  
 Otterness, I., R724  
 Otterson, M. F., G355  
 Otto, M. R., R879  
 Owen, O. E., E225
- Paaske, W. P., H1709  
 Pack, A. I., R139  
 Padbury, J. F., R1126  
 Page, E., C801  
 Pagni, R., F545  
 Paine, R., L73  
 Pajaro, O., H457  
 Pajor, A. M., C605  
 Pakbaz, H., L151  
 Palackal, T., H1086  
 Palfrey, H. C., F383  
 Palida, F. A., G219  
 Pallone, T. L., F688  
 Palmer, B. M., C432  
 Palmer, J. D., L81  
 Panettieri, R. A., L365
- Pang, J. J., R1131  
 Pang, K. S., G32  
 Panus, P. C., L328  
 Panuska, J. R., L396  
 Papa, L., H181  
 Pappenheimer, J. R., G290  
 Parent, L., F348  
 Parisi, M., G786  
 Parisi, V. M., E851  
 Park, C. S., F539  
 Park, J. H. Y., G639  
 Parker, J. L., H504  
 Parker, M., F598  
 Parkinson, W. L., R829  
 Parodi, J., G511  
 Parratt, J. R., H1038  
 Parrillo, J. E., H1440  
 Parsons, W. J., H1477  
 Pasquali, D., E529  
 Pasque, C. B., F233  
 Passamonti, S., F559  
 Patel, B. S., H889, H1901  
 Patel, M. B., H1736  
 Patlak, J. B., C3  
 Patton, G. M., G205  
 Patton, L. L., C340  
 Pawloski, C. M., R102, R531  
 Payne, J. A., C819  
 Pazzola, A., F304  
 Peach, M. J., F660, F793, F882  
 Pearce, S. F. A., C439  
 Pedersen, O., E778  
 Peeters, T. L., C150  
 Pelletier, S., E246  
 Pelligrino, D. A., E729  
 Pelz, K., R760  
 Pelzer, D., H264  
 Pelzer, S., H264  
 Pencharz, P. B., E835  
 Pennington, G. L., F839, R593  
 Perault-Staub, A. M., E370  
 Percy, W. H., G753  
 Perfetto, M. C., F269  
 Permutt, M. A., E593  
 Perna, A. F., F210  
 Perrone, R. D., F65  
 Perry, M. A., G578  
 Persson, P. B., F466, H1050  
 Persson, U., F809  
 Pérusse, F., R1043  
 Pestell, R. G., E141  
 Peters, E. J., E576  
 Peters, J. C., R1103  
 Peters-Golden, M., L73  
 Peterson, L. N., F122  
 Peterson, M. W., C69  
 Pham, P., F619  
 Pham, T., R637  
 Phillips, C. L., H1471  
 Phillips, D. M., L415  
 Phillips, S. F., G767  
 Piantadosi, C. A., H1477  
 Pierobon-Bormioli, S., C144  
 Pike, M. M., H1767  
 Pinsky, M. R., H697  
 Pinter, G., R601  
 Piolino, V., E305  
 Pittman, Q. J., R1056  
 Pittman, R. N., H1694  
 Pizurki, L., F389, F929  
 Plasman, P. O., E844  
 Ploemacher, M. C., G410  
 Ploug, T., E778, R998  
 Poehlman, E. T., E66  
 Pointillart, A., F104
- Polak, J. M., F26, F605  
 Polenzani, L., C397  
 Police, R. J., H1171  
 Polio, J., G21, G498  
 Polk, D. H., E787  
 Polla, B. S., C77  
 Pollack, G. H., C266  
 Pollard, C. E., C752  
 Ponce, A., C978  
 Poole, D. C., H204  
 Poole-Wilson, P. A., H1009  
 Poppleton, H. M., R439  
 Porkka-Heiskanen, T., E162  
 Porte, D., Jr., E378  
 Portet, R., R90  
 Porush, J. G., F645  
 Postlethwaite, A. E., R439  
 Postoak, D., C849  
 Pothoulakis, C., G165  
 Pourcyrus, M., H662  
 Power, B., C801  
 Power, J. H. T., L238  
 Powers, K., F503  
 Powers, L. P., E451  
 Prasad, M. R., H1101  
 Prato, F. S., C687  
 Preisig, P. A., F587  
 Prince, R. L., E272  
 Prinzen, F. W., H300  
 Pritchard, J. B., R147  
 Proppe, D. W., R1139  
 Przekop, P., Jr., R786  
 Puhakainen, I., E397  
 Puri, R. N., C862
- Qian, S., H1718  
 Quamme, G. A., C521  
 Quarfordt, S., G15  
 Quek, V. S.-H., R807  
 Quick, A. N., Jr., E492  
 Quigg, R. J., F326  
 Quillen, E. W., Jr., R618  
 Quinn, J., G99  
 Quirke, J. F., E822
- Racusen, L. C., H681  
 Radermacher, J., F9  
 Radziuk, J., E292  
 Raff, H., H681  
 Raghunath, M., E463  
 Ragsdale, N. V., R690  
 Raivio, K. O., C883  
 Rajaraman, S., G86  
 Rall, J. A., R197  
 Ram, S. J., C842  
 Raman, M., E292  
 Rana, M. W., R645  
 Randall, R. D., H543  
 Randall, W. C., H1504, S4  
 Rani, C. S. S., E529  
 Rapp, N. S., F432  
 Raselli, A., F832  
 Rasgado-Flores, H., C541  
 Rasmussen, H., R461  
 Rasmussen, R. L., H352, H370  
 Rasschaert, J., E123  
 Ravussin, E., E850  
 Raybould, H. E., G1037  
 Raymond, J. R., F727  
 Raz, I., E650  
 Read, L. C., G443  
 Reaven, G. M., E706  
 Reddy, S., F480  
 Redha, R., F553, G327  
 Ree, H., R184



## AUTHOR INDEX TO VOLUME 259

- Reed, M. A., G671  
 Reed, R. K., H532, H1097  
 Reed, W. P., H1325  
 Reedy, T. J., G1025, G1031  
 Reenstra, W. W., G850, G913  
 Reers, M., H973  
 Rees, W. D., E483  
 Reibel, D. K., H230, H1518  
 Reid, I. A., R618  
 Reilly, J. J., Jr., E677  
 Reilly, J. M., H1440  
 Reinauer, H., H554  
 Reisine, T., E216  
 Reiss, O. K., H1809  
 Rembert, J. C., H1006, H1477  
 Rembold, C. M., C251  
 Remesy, C., E614  
 Remuzzi, A., F545  
 Remuzzi, G., F545  
 Reneman, R. S., H300  
 Rennie, M. J., E148, E185, E284  
 Rennke, H. G., F239  
 Renstrom, B., H317  
 Renzetti, L. M., G1  
 Repetta, D., E881  
 Repine, J. E., H1809  
 Reppert, S. M., E384  
 Resar, J., H1869  
 Restrepo, D., C490  
 Retallack, R., E272  
 Reuben, A., G21  
 Reuss, L., C56  
 Reviczky, A. L., E787  
 Revtyak, G. E., H582  
 Reyes, A. A., F859  
 Reyes, J. G., C660  
 Rezvani, I., E225  
 Rhim, B. Y., C239  
 Rhoads, J. M., G99  
 Ribet, A., G842  
 Rice, K. C., H1278  
 Rice, K. L., L439  
 Rich, T. L., H592  
 Richard, B., R461  
 Richard, D., R579  
 Richard, V., H1433  
 Richards, N. W., C181  
 Richardt, G., R925  
 Rick, R., F778  
 Rickmeyer, M., F485  
 Riegger, G. A. J., H1643  
 Riley, T., R1063  
 Rinehart, J. J., L276  
 Rivas, P. A., H1178  
 Rivest, S., R579  
 Rivier, J. E., E131, H174  
 Rivkees, S. A., E384  
 Rizzoli, R., F389, F929  
 Robbins, T. W., R485  
 Roberts, P. E., L415  
 Roberts, S. B., R461  
 Robertson, B. T., S11  
 Robillard, J. E., R1050  
 Robins, S. J., G205  
 Robinson, K., H370  
 Robishaw, J. D., H432  
 Roblero, J. S., F752  
 Rocha, A. S., F258  
 Rocha e Silva, M., H1752  
 Roch-Ramel, F., F613  
 Rodkey, W. G., R119  
 Rodman, D. M., H48  
 Rodnick, K. J., E593, E706  
 Rodriguez, M., F233  
 Roerig, D. L., R288  
 Rogers, D. F., L108  
 Rogers, G. F., H1152  
 Rogers, Q. R., R627, R709, R716  
 Rogers, S. A., F251, F474  
 Rogers, W. J., H1492  
 Rohde, J. A. L., L108  
 Roland, B., E534  
 Roldan, L., G1010  
 Roman, R. J., H860  
 Romaschin, A. D., H116, H525  
 Rome, L. C., R189, R210  
 Romsos, D. R., E362  
 Ronco, L. V., G274  
 Rondon, I., C427  
 Roosenmalen, M. C. M., C349  
 Root, C., G233  
 Rose, C. E., Jr., R690  
 Rosen, B., R184  
 Rosenbaum, M. B., H290  
 Rosenberg, S. H., R7  
 Rosenblatt, J., E470  
 Rosenblum, W. I., H243, H1396  
 Rosenfeld, C. R., C484, H464, H473  
 Rosengren, S., H1288  
 Rosenshtaukh, L. V., H1609  
 Ross, C. R., C897  
 Ross, M. J., R341  
 Rossiter, C. D., G899  
 Rothe, C. F., H932  
 Rothschild, H. R., G519  
 Rothwell, N. J., R266  
 Rotto, D. M., H745  
 Rotwein, P., E89, F251  
 Roullet, C., F104  
 Rountree, J., E881  
 Rouslin, W., H1759  
 Rowe, R. W., H1022  
 Rowell, L. B., H1197  
 Rowley, W. H., G655  
 Roy, R. R., C507  
 Rozé, C., G198  
 Rubin, B. B., H525  
 Rubin, L. J., H281  
 Rubinstein, I., L372  
 Rubinstein, N. A., L365  
 Rubio, R., H1471  
 Ruegg, C. E., F164, F176  
 Ruff, R. L., C911  
 Ruggenenti, P., F545  
 Ruggeri, P., R32  
 Ruiz, O. S., F512  
 Russell, J., G300  
 Russell, M., H340  
 Russo, J. J., C968  
 Rutlen, D. L., H1595  
 Rutten, M. J., G998  
 Ryan, J. P., G1  
 Ryan, K. L., R1139  
 Ryan, U. S., L123  
 Saad, M. F., E650  
 Saccà, L., E96  
 Sacktor, B., F444  
 Sacristan, E., G519  
 Sadow, J. L., E89  
 Saffitz, J. E., C325, H1402  
 Sahagun, G., H162  
 Sahlin, K., C26, C409, C834  
 Said, H. M., C397, G327, G865  
 Said, S. I., L151  
 Sailor, L. Z., L432  
 Saito, H., H1134, R282  
 Sakai, S.-I., R921  
 Sakakibara, H., L151  
 Sakamoto, T., H1649  
 Salama, A., C723  
 Salant, D. J., F326  
 Salas, S. P., F26, F605  
 Saldivia, V., G1010  
 Saltin, B., E170  
 Salvati, G., C144  
 Sanchez-Ferrer, C. F., H982  
 Sánchez-García, P., C527  
 Sanders, K. M., C402, G125, G258, G264  
 Sandler, S., C828, E52  
 Sanguinetti, M. C., H1881  
 Sansom, S. C., F46  
 Santamore, W. P., H181  
 Sarelus, I. H., H124  
 Sarna, S. K., G155, G355, G420, G693  
 Sarr, M. G., G314, G928  
 Sasaki, H., L345  
 Sasaki, S., F902  
 Sasaki, T., L345  
 Sasaki, Y., C769, C769  
 Sassard, J., H1337  
 Sastrasin, M., F863  
 Sastrasin, S., F863  
 Satlin, L. M., F801  
 Sato, M., L345  
 Sato, R., H1730  
 Sato, S., G655  
 Sato, T., R282, R1050  
 Sato, Y., R1012  
 Satoh, S., H9  
 Satoh, T., F425  
 Sauermelch, C., H1835  
 Sauermeilch, C. F., H1688  
 Saulnier-Blache, J.-S., E80  
 Sauvè, R., F348  
 Sawada, Y., H1278  
 Saxenhofer, H., F832  
 Schaberg, T., L144  
 Schaefer, S., H1190  
 Schafer, J. A., F147, F823  
 Schali, M. J., H1254  
 Scharschmidt, B. F., G56  
 Schasfoort, E. M. C., R773  
 Schaudies, R. P., G1056  
 Schedewie, H. K., R288  
 Scheel, K. W., H706, H1667  
 Schelling, M. E., G134, H925  
 Schepp, W., G556, G646  
 Scheuer, J., H866  
 Scheurink, A. J. W., R470, R478  
 Schiffrin, E. L., F130  
 Schildberg, F. W., C526  
 Schlicker, E., E131  
 Schmaltz, S., H1463  
 Schmelzer, J. D., R371  
 Schmid, H.-R., G78  
 Schmid-Schönbein, G. W., H1860  
 Schmidt, A., F872  
 Schmidt, I., E11, R270  
 Schmidler, J., G646  
 Schmieg, R. E., Jr., G402  
 Schneider, J. E., R1198  
 Schnermann, J., F186, F565  
 Schoemaker, I. E., H1148  
 Schoenberg, M., C258  
 Schoeppe, W., F419  
 Scholz, H., C421  
 Schömig, A., R925  
 Schott, C., H1038  
 Schousboe, B., G474  
 Schreiber, G., G340  
 Schrock, G. D., H635  
 Schulkin, J., R411  
 Schultz, H. D., H745  
 Schultz, R. E., E881  
 Schulz, R. K., C960  
 Schulz-Knappe, P., F415  
 Schumann, W. C., E335  
 Schurek, H. J., F910  
 Schusdzia, V., G646  
 Schütten, H. J., R53  
 Schwab, A., F494  
 Schwab, A. J., G32  
 Schwappach, J. R., H1809  
 Schwartz, G. G., H1190  
 Schwartz, G. J., F801  
 Schwartz, J. H., C531, F666  
 Schwartz, L. M., H1295  
 Schwartz, M. W., E378  
 Schwartz, W. J., R1083  
 Scott, N. A., H174  
 Scott, R. B., G6  
 Scrimgeour, C. M., E185  
 Seavey, E., H1667  
 Seddon, M., L262  
 See, N. A., G593  
 Seetharam, S., G93  
 Segal, Y., C56  
 Segil, L. J., E729  
 Seibert, A., H144  
 Seijns, P., H1709  
 Seki, N., F888  
 Sellers, J. R., C258  
 Sen, L., H1533  
 Sener, A., E117, E123  
 Serhan, C. N., F809  
 Seri, I., F138  
 Serrano-Castro, A., C527  
 Seto, K., R282  
 Seto, M., C769  
 Seydoux, J., E658, R61  
 Seyer, J. M., R439  
 Seyfarth, M., F466  
 Shaffer, J. B., L506  
 Shaffer, T., H181  
 Shaikh, N., F80  
 Shainoff, J. R., C611  
 Shank, M., E736  
 Shanklin, D. R., H1230  
 Shanley, P. F., H1809  
 Shansky, J., C232  
 Shapira, S., R427  
 Shapiro, E. P., H1492  
 Sharp, G. W. G., E568, E856  
 Shaver, S. W., R1131  
 Shaw, A., F419  
 Shaw, S. G., F832  
 She, Z.-W., L276  
 Sheikh, S. P., H1709  
 Shelat, H., C134  
 Sheldon, E. A., H1152  
 Shen, K.-Z., G966  
 Shenolikar, S., F867  
 Shepro, D., L378  
 Sherry, A. D., H987  
 Shiao, R.-T., L351  
 Shiao, Y.-F., G671  
 Shibata, E. F., H352, H370  
 Shibata, M., H1486, R61  
 Shibata, T., H1566  
 Shiga, T., H1071  
 Shimizu, T., F408  
 Shimura, S., L345  
 Ship, J. A., C340

## AUTHOR INDEX TO VOLUME 259

- Shiratori, T., E814  
 Shoukas, A. A., H674  
 Showell, H., C577  
 Shuba, Y. M., H264  
 Shulman, G. I., E335  
 Sideman, S., H1492  
 Siderfin, C., G983  
 Siegel, J. A., G1062  
 Siegle, M.-L., G78  
 Sielczak, M. W., L136  
 Signoretti, F., L136  
 Sikes, P. J., H1890  
 Silbiger, J., R350  
 Silen, W., G564  
 Sillau, A. H., G524  
 Silva, R., F752  
 Simon, E. E., F402, F783  
 Simon, F. R., G394  
 Simon, R. H., L73  
 Simon-Oppermann, C., R294  
 Simonson, M. S., E751  
 Singer, A., H1736  
 Singer, D. H., H488, H1730  
 Singer, H. A., C631  
 Singh, G., R645  
 Singleton, A., F26  
 Sinha, A. A., L439  
 Sipkema, P., H1869, H1934  
 Sipols, A., E378  
 Siragy, H. M., F793  
 Sjöholm, Å., C828  
 Sjöström, L., E599  
 Sjövall, H., G348  
 Skadhauge, E., G474  
 Skalak, T. C., H1860  
 Skelton, D. C., L102  
 Sklar, A. H., E723  
 Skøtt, O., F186  
 Skottner, A., E561  
 Slatopolsky, E., E319, F432  
 Slotki, I. N., F666  
 Smatresk, N. J., R887  
 Smekal, A., H1190  
 Smith, A., H525  
 Smith, A. C., H218  
 Smith, C. H., C47  
 Smith, F. G., R1050  
 Smith, F. M., H1103, H1365  
 Smith, G. P., R110, R317, R1228  
 Smith, J. B., C302  
 Smith, J. C., R879  
 Smith, L., C302  
 Smith, M. J., E422  
 Smith, M. J., Jr., R585  
 Smith, M. L., H689  
 Smith, O. A., R943  
 Smith, P. M., R147  
 Smith, T. W., H1533  
 Smout, A. J. P. M., G955  
 Snajdar, R. M., E751  
 Snape, W. J., Jr., G889  
 Snipes, E. R., F704  
 Snyder, D. S., R545  
 Snyder, F., C697  
 Sobel, B. E., C325  
 Sobel, E. M., R163  
 Soffer, E. E., G983  
 Schar, I., C232  
 Sokol, P. P., C897  
 Soll, A. H., G556  
 Solomon, A. K., F366  
 Solomon, T. E., G364  
 Solway, J., L294  
 Sondeen, J. L., R119  
 Sonnenberg, H., F222, F415  
 Soper, N. J., G928  
 Sopher, S. M., H689  
 Soro, A., F304  
 Sottocasa, G. L., F559  
 Spears, R. P., G48  
 Specian, R. D., G991  
 Spector, A. A., C738  
 Spencer, M. K., C26  
 Spencer, R. L., E405  
 Sperelakis, N., H639  
 Spiegel, P., C911  
 Spiegelman, B., R184  
 Spinale, F. G., H218  
 Spinass, G. A., R993  
 Spitzer, J. J., G907  
 Spitznagel, E., G511  
 Spring, K. R., F986  
 Sraer, J., F816  
 Stahl, R. A. K., F419  
 Stallknecht, B., R998  
 Stallknecht, B. M., E778  
 Stamler, J., H804  
 Standen, N. B., C3  
 Stanley, A. W. H., H1822  
 Stanta, G., F559  
 Stanton, B. A., F88  
 Staprans, I., E177  
 Star, R. A., F393  
 Starmer, C. F., H626, H1178, H1609  
 Staten, M. A., E155  
 Staub, J. F., E370  
 Stechschulte, D. J., G41  
 Stechschulte, D. J., Jr., G41  
 Steenberg, C., C940  
 Steffens, A. B., R470, R478, R773  
 Stehno-Bittel, L., H643  
 Stein, M., E405  
 Steinhart, C. M., E723  
 Steinhilber, M. E., H1826  
 Stenberg, D., E162  
 Stephan, R. N., R663  
 Stephens, N. L., L53  
 Stephenson, D. G., H1118  
 Stephenson, R. L., C35  
 Steplock, D., F867  
 Stern, N., H1774  
 Stevens, A. D., R1004  
 Stevens, E. D., R204  
 Stevens, R., G258  
 Stewart, D. J., H1928  
 Stewart, J. M., H1736  
 Stienen, G. J. M., C349  
 Stipanuk, M. H., E443  
 Stoclet, J.-C., H1038, H1427  
 Storelli, C., R1181  
 Strandvik, B., G116  
 Strasheim, A., C693  
 Strelkov, A. B., C526  
 Stremmel, W., L206  
 Stricker, E. M., R447  
 Strijbos, P. J. L. M., R266  
 Striplin, S., H1822  
 Stripp, B. R., L185  
 Strumpf, R. K., H101  
 Stuart, C. A., E470  
 Stuart, J. S., H1056  
 Stuenkel, E. L., G792  
 Stull, J. T., C484  
 Sturek, M., H643  
 Suarez-Kurtz, G., C503  
 Suchy, F. J., G334  
 Sudo, R. T., C503  
 Suga, H., R1075  
 Sugimoto, E., G191  
 Sugimoto, T., F936  
 Summy-Long, J. Y., R305  
 Supiano, M. A., E422  
 Surprenant, A., G966  
 Suszkiw, J. B., C762  
 Sutherland, E., G394  
 Sutherland, J., G394  
 Sutton, R., R70  
 Suzuki, H., F888  
 Suzuki, M., C527, G859  
 Svedberg, J., E555  
 Svendsen, J. H., H1709  
 Swafford, A., H1822  
 Swain, K., C19  
 Sweadner, K. J., C968  
 Sweeney, T. E., H124  
 Sweet, I. R., E517  
 Swinburn, B. A., E650  
 Szczepanska-Sadowska, E., R1250  
 Szewczak, S. M., G239  
 Szymdynger-Chodobska, J., R1250  
 Taborsky, G. J., Jr., E378  
 Taché, Y., G599, G1037  
 Taegtmeier, H., H1022  
 Tagawa, H., H9  
 Takahashi, I., G745  
 Takasaki, I., H442  
 Takatsui, H., R282  
 Takemoto, F., F40  
 Takeyama, N., E498  
 Takeyasu, K., C619  
 Takishima, T., H940, L345  
 Talor, Z., F512  
 Tanabe, H., C432  
 Tanaka, M., G314  
 Tanaka, T., E498  
 Tang, M.-J., C455  
 Tani, M., H137  
 Tannen, R. L., C455  
 Tanner, F. C., H1433  
 Tappy, L., E225  
 Tapscott, E. B., E111  
 Tarjan, E., R729, R736, R741  
 Tateishi, T., R931  
 Tatrow, D. L., R792  
 Tatsumi, H., G966  
 Tauber, A. I., C531  
 Tavoroni, N., G736  
 Taylor, A. E., H144, H1097, S8  
 Taylor, I. L., G687  
 Taylor, P. M., E284  
 Teague, W. G., H735  
 Teitelbaum, I., C693  
 te Koppele, J. M., G814  
 Ten Eick, R. E., H488  
 Tenenhouse, H. S., F286  
 Terada, L. S., H1809  
 Terada, Y., F519  
 Terjung, R. L., C889  
 Terrell, M. L., R305  
 Tesfamariam, B., H55  
 Tessari, P., E96  
 Tessier, G. J., L459  
 Tewson, T. J., H1022  
 Thacker, S. V., E865  
 Thais, F., F419  
 Thelin, O., H1230  
 Theodorsson, E., F573  
 Thermos, K., E216  
 Thews, G., H84  
 Thibault, G., E246, H1374  
 Thibonnier, M., E751  
 Thieffin, G., G1037  
 Thio, S. L., R1126  
 Thomas, A. P., H230  
 Thomas, M. J., R453  
 Thomas, T., G340  
 Thomas, U., H116  
 Thomasset, M., F104  
 Thompson, C. A., R792  
 Thompson, J. C., G86, G173  
 Thompson, P., G983  
 Thorburn, G. D., R703  
 Thorens, B., C279, C286  
 Thornton, J., H1822  
 Thornton, S., R21  
 Thrivikraman, K. V., R1236  
 Thurman, R. G., G814  
 Tibbits, G. F., R453  
 Tidgren, B., F573  
 Tiengo, A., E96  
 Tietjan, C. S., H1471  
 Tietze, C. C., G93  
 Tiribelli, C., F559  
 Tithof, P. K., H648  
 Tobin, J. R., H681  
 Tochiara, M., H1134  
 Tod, M. L., H281  
 Toda, N., H1511  
 Todisco, E., G786  
 Toffolo, G., E890  
 Togashi, H., H1134  
 Tohse, N., H639  
 Tojo, A., F936  
 Tokarz, J. J., F338  
 Tokuyama, K., L108  
 Tolentino, T., G753  
 Tolley, T. K., H1402  
 Tomanek, R. J., H1681  
 Tomita, K., F535  
 Tomlinson, K. C., R405  
 Tomoike, H., H9, H1343  
 Tomsig, J. L., C762  
 Tonolo, G., F304  
 Tordoff, M. G., R411  
 Torrealba, P., L136  
 Torres-Escalante, J. L., C949  
 Toscani, K., C549  
 Toubiana, L., E370  
 Tounge, T. J. K., H1551  
 Toverud, S. U., E665  
 Townsend, C. M., Jr., G86, G173  
 Trachez, M. M., C503  
 Tracqui, P., E370  
 Travill, C. M., R70  
 Trayhurn, P., R807  
 Traynor, T. R., L459  
 Traystman, R. J., H34, H681, H1551  
 Treanor, C., L506  
 Tredget, E. E., E36  
 Tremblay, J., F130  
 Trentham, L., S11  
 Trevisan, R., E96  
 Triana, F. J., H889  
 Triana, J. F., H1901  
 Tribble, C. G., H1471  
 Tribollet, E., F872  
 Trinder, D., G611  
 Trivella, M. G., H1575  
 Trizna, W., F217  
 Troffa, C., F304  
 Trotz, M., L151  
 Troutman, S. L., F823  
 Tsan, M.-F., L506  
 Tsao, P. S., H1660

# AUTHOR INDEX TO VOLUME 259

- Tschudi, M., H1433  
Tseng, F.-Y., E529  
Tso, P., G386, G709  
Tsocas, A., G198  
Tsunekawa, K., H1071  
Tsunoda, Y., G792  
Tsutsui, H., H1343  
Tsykin, A., G340  
Tuck, M. L., H1774  
Tulenok, T. N., H1933  
Tuma, D. J., G639  
Tumiati, L., H116  
Turay, L., R237  
Turek, F. W., R514  
Turkelson, C. M., G364  
Turkenkopf, I., R184  
Turner, B., G681
- Ucci, A. A., F65  
Ueno, M., C427, C849  
Ugarte, R., C660  
Ujiie, K., F535  
Ullian, M. E., F598  
Ulrich, P. M., R411  
Umans, J. G., F293  
Undem, B. J., L403  
Undrovinas, A. I., H1609  
Unthank, J. L., G282  
Uozumi, N., R921  
Upp, J. R., Jr., G173  
Upshaw-Earley, J., C801  
Urayama, T., H940  
Urbain, J.-L. C., G1062
- Vaandrager, A. B., G410  
Vacca, C. V., C647  
Vaccarino, F. J., R651  
Valentich, J. D., L496  
Valenzuela-Rendon, J., R1205  
Valeri, C. R., L378  
Vallerand, A. L., R1043  
Valverde, I., E117  
van Beek, J. H. G. M., H1606  
van Bree, L., L87  
Van Breemen, C., H2  
Van Cutsem, E., G1062  
Vandecruys, A., G1062  
Vandenburgh, H. H., C232  
Vander, A. J., R724  
van der Linden, L. P., H1419  
Van der Meer, P., H759  
van der Velde, E. T., H1419  
Vanderweele, D. A., R823  
Van Epps, D. E., H1325  
Van Golde, L. M. G., L87  
Vanheel, B., C169  
Van Houten, D. R., E66  
Vanhoutte, P. M., H156, H982  
Van Iwaarden, J. F., L87  
Van Reeth, O., R514  
Van Scott, M. R., L213  
Vantrappen, G., C150, G1062  
Van Voorhis, K., G327  
Van Winkle, D. M., H1822  
Varoni, M. V., F304  
Vaughan, D. K., C205  
Vayase, N., G842  
Veal, C. F., H518  
Veale, W. L., R1056  
Velarde, M. V., C660  
Velasco, I. T., H1752  
Veldhuis, J. D., E351  
Veltza, S. V., L488  
Venglarik, C. J., C358  
Ventura-Clapier, R., H1803
- Verbalis, J. G., R447  
Verburg, K. M., R7  
Verdier, J. A., E177  
Verhoef, J., L87  
Verkman, A. S., C375, C920  
Vermillion, D. L., G306  
Vescovo, G., H1009  
Viberti, G., F545  
Vicaud, E., H403  
Vickery, L., H1835  
Videbæk, L. M., H14  
Vigna, S. R., G687  
Vilella, S., R1181  
Villamil, M. F., R172  
Villani, A., L396  
Villanueva, M. L., G468  
Villarreal, F. J., H1409  
Villereal, M. L., C549  
Viña, J. R., E104  
Vincent, J.-D., C854  
Vinten, J., E778, R998  
Virkamäki, A., E397  
Voelkel, N. F., H751, L451  
Vogalis, F., G125  
von Schrenck, T., G468, G873  
Vranic, M., E626
- Wade, C. E., R119  
Wade, G. N., R1198  
Wade, J. B., F88  
Wagner, D., R461  
Wagner, D. A., E36  
Wainman, D. S., R1131  
Wajngot, A., E626  
Walaszewski, J. A., E36  
Walden, D. L., H1809  
Waldrop, G. L., G212, G219  
Waldrop, T. G., R606  
Wali, R. K., G571  
Walker, P. M., H525  
Wall, K. M., R1131  
Wall, P. T., H1380  
Wallace, J. L., G140, G300, G462  
Wallick, D. W., H536  
Wals, P. A., E389  
Walser, M., E633  
Walsh, J. H., G556  
Walsh, S. W., E851  
Walton, P. E., E672  
Wang, H., G519  
Wang, J., H1736  
Wang, J.-Y., G584  
Wang, L.-H., G468, G655  
Wang, M. B., G1  
Wang, P., R645  
Wang, W., F494  
Wang, X., C365  
Wang, Z., H1743  
Warberg, J., R53  
Ward, K. K., R371  
Ward, M. R., E148  
Ward, R. F., R1164  
Ward, S. M., G258, G264  
Ware, J., E692  
Wasser, J. S., R15, R521  
Wasserman, D. H., E195  
Wasserstrom, J. A., H1730  
Watanabe, M., F704  
Watanabe, N., H42  
Watkins, D. W., E319  
Watt, P. W., E148  
Weatherford, S. C., R1093  
Weaver, A. B., H1330  
Weaver, C. J., E432  
Weaver, M. L., C842
- Webb, R. C., H1  
Weernink, E. J., R357  
Wehberg, K. E., R981  
Weidmann, P., F832  
Weigle, C. G. M., H34  
Weigle, D. S., R1148  
Weihprecht, H., F186  
Weiner, M. W., H1190  
Weingarten, H. P., R658, R829, R1090  
Weinman, E. J., F867  
Weinreich, D., L403  
Weisbrod, R. M., H55  
Weisfeldt, M. L., H1492  
Weisinger, R. S., R729, R736, R741  
Weiss, H. R., H346, H872  
Weiss, J. L., H1492  
Welbourn, R., L378  
Welling, D. J., F594  
Welling, L. W., F594  
Wellner, R. B., C340  
Welsh, M. J., C295, L410, L426, L496  
Welsh, N., C828  
Wendt, D. J., H1178  
Wendt, I. R., H849  
Wesley, R. C., Jr., H1544  
Wesson, D. E., F636  
West, D. B., R981  
Westcott, J. Y., H751  
Westerhof, N., H1606, H1934  
Westfall, T. C., H1674  
Wewers, M. D., L276  
Wexler, A. S., F715  
Whalen, R. G., L116  
Whitcomb, D. C., G687  
White, D. J., H309  
White, F. C., R849  
White, J. E., L506  
White, S. R., L294  
Whitescarver, S. A., R76  
Whitsett, J. A., L185  
Wibom, R., E204  
Widdicombe, J. H., L481  
Widmaier, E. P., E601  
Wiedenkeiler, D. E., E568  
Wierzbicka, G. T., G524, G530  
Wight, D. G. D., E763  
Wilkinson, D. J., C668  
Willette, R. N., E131, H1688, H1835  
Willford, D., R849  
Williams, J. A., G157, G792  
Williams, J. F., H648  
Williams, P. D., C103  
Williams, P. E., E195, E342  
Williams, R. M., R729, R736, R741  
Williams, S. E., H706, H1667  
Williams, S. K., F147  
Williams, S. L., C432  
Williams, T. D. M., R70  
Wills, N. K., C869  
Willson, D., H735  
Wilson, B. E., R1148  
Wilson, C. M., L488  
Wilson, D. R., F222  
Wilson, G. J., H116  
Wilson, L. B., H1380  
Wilson, L. K., E865  
Wilson, M. G. A., C349  
Wimbiscus, S. A., E792  
Winaver, J., R84  
Winder, W. W., E266
- Wingate, D. L., G983  
Winn, H. R., H1703  
Wirbel, A., G702  
Wit, A. L., H1826  
Wittenberg, B. A., H1851  
Wixson, S. K., H324  
Woledge, R. C., H1601, R197  
Wolf, G., F768  
Wolf, R. A., C987  
Wolfe, L. S., F326  
Wolfe, R. R., E239, E470, E576  
Wolin, M. S., H1056  
Wolpers, H. G., H167  
Wong, W.-H., H1022  
Wood, C. E., R350  
Wood, K. S., H1813  
Woods, R. E., R936  
Woods, R. L., R813  
Woods, S. C., E378  
Woolley, G., H849  
Work, J., F688  
Worley, J. F., C3  
Worley III, J. F., L468  
Wray, H. L., G1056  
Wright, E. M., C605  
Wright, J. R., L1  
Wright, P. A., F53, F961  
Wright, S. D., L315  
Wu, J., H1842  
Wurster, R. D., H1504  
Wusteman, M., E763
- Xie, M.-H., G56
- Yadvish, P. A., L365  
Yagi, M., E633  
Yagil, Y., F679  
Yaku, H., R1075  
Yakubu, F., R1096, R1103  
Yamada, T., G108  
Yamaguchi, A., E73  
Yamaguchi, M., C709  
Yamaguchi, Y., G781  
Yamanishi, R., G191  
Yamanouchi, H., R1289  
Yamatani, T., E73  
Yanagisawa, K., G599  
Yanaka, A., G564  
Yancey, L., H1171  
Yancey, P. H., F733  
Yaney, G. C., E856  
Yang, M., H1307  
Yang, X.-P., F304  
Yasharpour, S., G822  
Yau, W. M., G838, G1019  
Yaylali, B., E117  
Yellin, E. L., H457  
Yeo, C. J., G402  
Yilmaz, T., E123  
Yin, F. C. P., H101, H1869  
Yki-Järvinen, H., E397  
Yonei, Y., G147  
York, D. A., R539  
Yachimatsu, H., R799  
Yoshimura, T., H464, H473  
Yoshioka, M., H1134  
Yoshitomi, K., F408  
Young, D. A., E457  
Young, G. A., R7  
Young, I. R., H849  
Young, J. B., E233  
Young, V. R., E36, E699, R461  
Youter, M. L., G1019  
Yu, A. S. L., F653  
Yu, Y.-M., E36

# AUTHOR INDEX TO VOLUME 259

Yuan, X.-J., H281, H409  
Yuen, L., R601

Zadunaisky, J. A., C439  
Zahniser, D. J., F65  
Zaror-Behrens, G., R324  
Zeballos, G. A., H1736

Zeidel, M. L., C471, F366  
Zelis, R., E261  
Zello, G. A., E835  
Zenilman, M. E., G511  
Zerba, E., R259  
Zhang, J., C854  
Zhang, L., G436  
Zhang, X.-M., H497

Zhou, F., C862  
Zhou, X.-J., F210  
Zhu, Q., H835  
Zierath, J. R., E685  
Zimmerman, B. G., H543  
Zimmerman, B. J., H390  
Zimniak, P., G453  
Zinner, M. J., G402

Zinsmeister, A. R., G767, G928  
Zitnay, K. M., H55  
Ziyadeh, F. N., F704  
Zou, C., H835  
Zucker, I., R760  
Zuniga, J. R., R1156  
Zurlo, F., E650  
Zych, K., E736



